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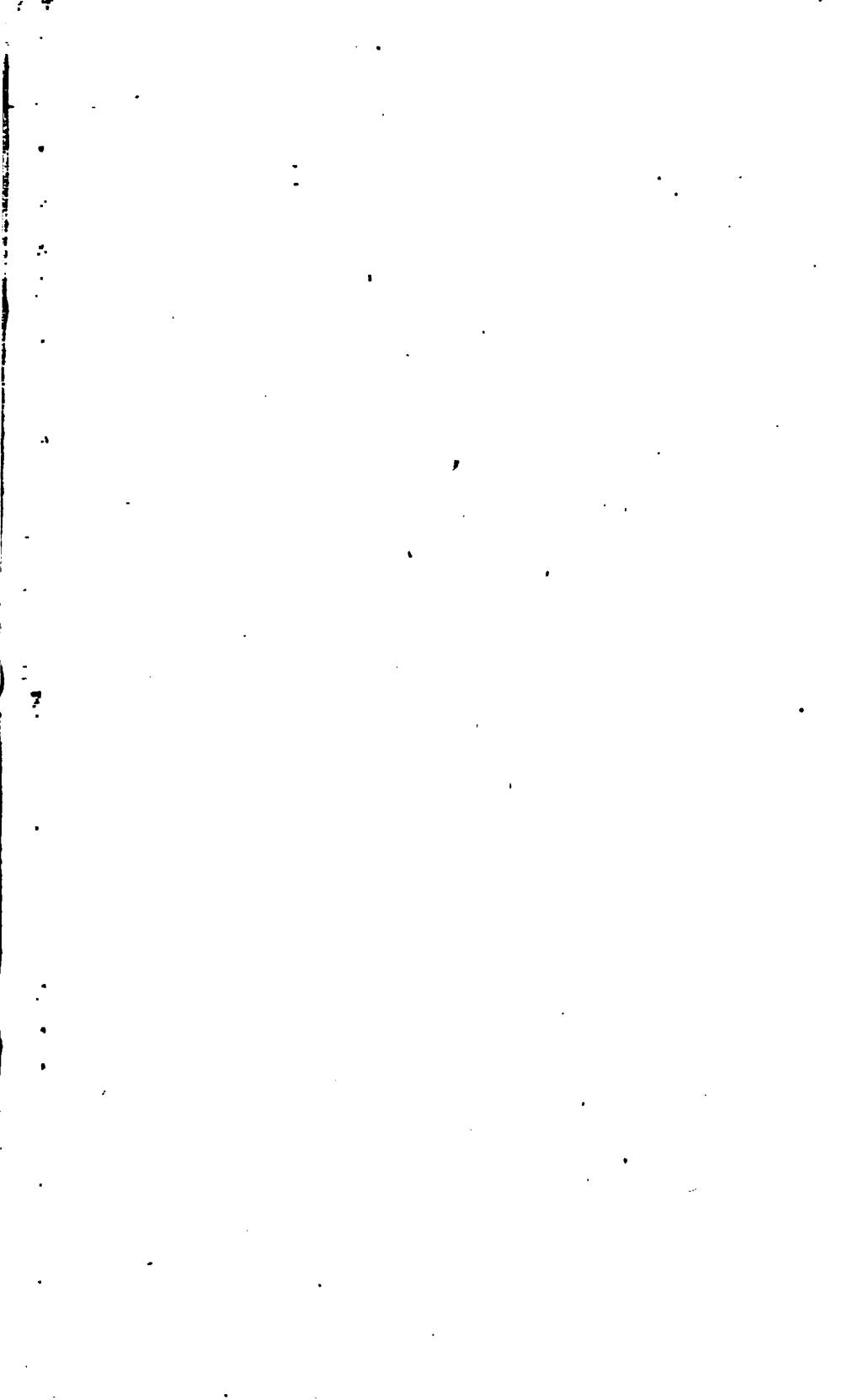
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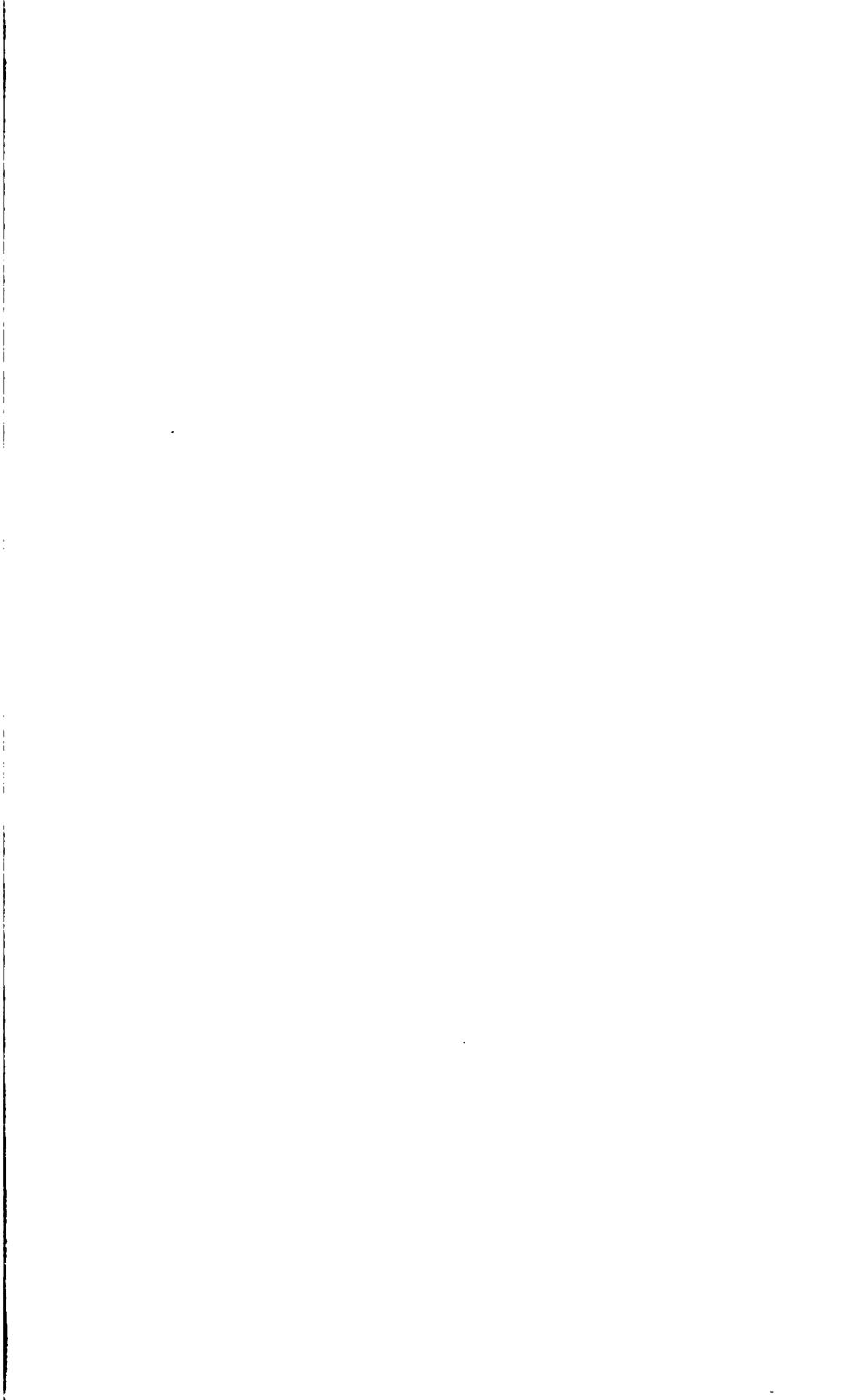
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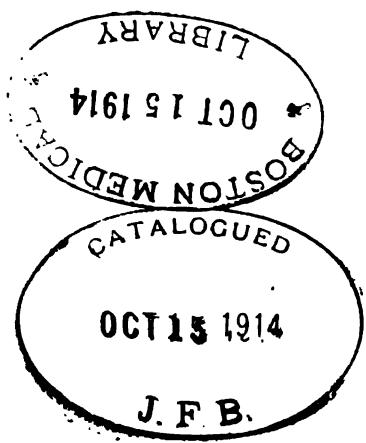
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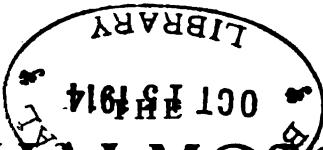
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OPHTHALMOSCOPE.

A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

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ARGYROL IN OPHTHALMIC PRACTICE.

BY

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In a paper read at a meeting of the Glasgow Eastern Medical Society on 2nd March, 1904, and subsequently published in the *Glasgow Medical Journal* of June, 1904, dealing with "the newer remedies in the treatment of diseases of the eye," I made some brief remarks on the great advantages in ophthalmic practice of the new silver salt argyrol. Since making these observations I have had a much more extensive experience of this new silver salt, both in private and hospital practice, and as that increased experience has confirmed and strengthened the favourable opinions expressed by me a year and a half ago, I have thought that the results of this increased experience might be interesting to those engaged in ophthalmic practice.

For a long term of years nitrate of silver held an undisputed sway as the most precious topical agent which we possessed in the treatment of conjunctivitis in all its various forms, and especially in the severe forms, such as ophthalmia neonatorum and purulent conjunctivitis. As we now know, the various forms of conjunctivitis are caused by micro-organisms, and the efficacy of the nitrate of silver was due to its powerful bactericidal action which it owed to its base. The powerful caustic and corrosive action of the nitrate of silver, due to the nitric acid it contained, made it a very dangerous agent in the hands of the inexperienced, and therefore limited its usefulness to a great extent, as it could be safely employed only under the constant and direct supervision of the ophthalmic surgeon.

It was therefore evident that it would be a very great gain if we could get a salt of silver which would possess the same bactericidal properties as the nitrate, but be free from its irritating and corrosive properties. Chemical science has now put us in possession of a number of new silver salts, which, whilst possessing a powerful bactericidal action, are comparatively free from the irritating and corrosive properties, which are such a great objection to the employment of nitrate of silver.

Of these new silver salts, argyrol, in my opinion, is the best for use in the treatment of diseases of the eye. Possessing at least as great bactericidal properties as any of the other salts, it has the very great advantage of being the least irritating, so that it can be used with the greatest freedom in 20 or even 30 per cent. solution, without causing the slightest discomfort or irritation. This, of course, is an enormous advantage in eyework, and no other salt of silver can be compared with it in this respect. Protargol, which I used largely at one time, is distinctly irritating in strong solutions, and finding argyrol even more effective in therapeutic action and much less irritating, I have long given up the use of protargol, nitrate of silver, and all other silver salts in its favour. It will be observed in the following pages that I nearly always employ argyrol in strong solution, generally 20 per cent. and sometimes 30 per cent. The less favourable reports of its action, I think, are largely due to its being employed in too weak solution, or with too sparing a hand. A drug to be effective must be employed of suitable strength, with sufficient frequency, and in the proper manner.

Argyrol is a definite combination of silver with synthetic vitellin, and the salt is said to contain 30 per cent. of silver, a much larger proportion than that contained in any of the new silver products. It is a yellowish powder, easily soluble in cold

water. The solutions of argyrol do not coagulate albumen, or precipitate chlorides, and have no caustic action on the tissues. The powerful caustic action of nitrate of silver made it a very dangerous agent in diseases of the eye, unless when it was employed under skilled supervision. Its action on the corneal tissue was such that, when ulceration of the cornea occurred, it had to be used with the greatest caution, and care taken to neutralize it immediately after application to the conjunctiva. Argyrol, on the other hand, can be used with the greatest freedom, even in cases where the cornea is extensively affected, having no injurious action on the corneal tissue.

Argyrol possesses the great advantage of being absolutely non-irritating even in strong solutions of 20 and 30 per cent. Patients often even describe its effects as very soothing, and say that their eyes feel much more comfortable after its application. This soothing effect is particularly observable in cases of conjunctivitis. This being my early experience, I was somewhat disappointed on finding later that patients occasionally complained of argyrol irritating the eye, when dropped into the conjunctival sac. I was somewhat puzzled to account for the fact that whilst, as a rule, it was absolutely non-irritating and even soothing, in some cases it seemed to irritate. I made a number of experiments in the hospital, which speedily explained this apparent anomaly. I found that whilst freshly made solutions were always absolutely non-irritating, solutions standing for some time and exposed to the light were always somewhat irritating to the eye. Solutions kept for some time but carefully protected from the action of light remained non-irritating, just like freshly-made solutions. The exact nature of the change produced by exposure to light I cannot say. It does not alter the appearance of the solution nor does it seem to impair in the slightest degree its bactericidal properties or its therapeutic usefulness, but it certainly renders it irritating to the eye, and produces a feeling of heat, burning, and discomfort, when dropped into the eye. Since learning these facts, I always give instructions to the chemist to paste a piece of cartridge paper round the bottle containing the argyrol solution, and tell the patient to keep the bottle in a dark place. Since adopting these precautions I have never heard the slightest complaint of irritation following its use, and I think this is a most important practical point, which should be borne in mind when prescribing argyrol for a patient.

I have used argyrol extensively, both in my private and hospital practice, in the treatment of conjunctivitis in its various forms, ulcers of the cornea, blepharitis, and diseases of the tear-

passages. As much depends upon the exact methods of its employment, I will describe the manner in which I have used it in each of these affections.

In the various forms of conjunctivitis argyrol is most efficacious. The strength of the solution employed and its frequency of application must be regulated according to the severity of the case. In mild forms of catarrhal conjunctivitis I employ a 10 per cent. solution, a few drops of which are instilled into the conjunctival sac three or four times daily. In granular conjunctivitis I employ a 20 per cent solution, to be used as drops, and to be instilled two, three, or four times daily, according to the severity of the case and the amount of discharge. Where there is much secretion, I also evert the lids and paint them once daily with a 30 per cent. solution of argyrol, rubbing it well into the conjunctival surface. In the milder cases, and where the discharge is not great, the painting is not necessary, and the use of the 20 per cent. drops is sufficient. In granular conjunctivitis the argyrol will be found most beneficial so long as there is any amount of discharge, but when this has ceased, further treatment must be carried out by touching with sulphate of copper. Even in the dry stage, however, I continue to employ the argyrol drops, less frequently, but combine them with the regular application of the copper pencil.

In ophthalmia neonatorum I have found argyrol of the greatest service, as we have in it a powerful bactericide, which can be freely employed and entrusted to the patient without the possibility of doing any damage. I have long entirely ceased to employ nitrate of silver in these cases; but in order to get good results, the argyrol must be employed in the proper way, and with sufficient frequency. This is the important point in the successful treatment of these cases. I use the drops in the strength of 20 per cent., and they can be applied very frequently without any irritating effects to the eye, and with very striking results as to the rapid diminution of the purulent secretion. In severe cases I have used the 20 per cent. drops every hour, but, as a rule, every 2, 3, or 4 hours will be sufficient. I direct that the conjunctival sac be freely washed out with boric or perchloride lotion, and, after it is freed from discharge, the argyrol drops be instilled. The careful eversion of the lids and painting with a 30 per cent. solution every day is advisable in bad cases. This eversion and painting of the lids must be done by the surgeon, but the use of the drops can be entrusted, without fear, to the patient's attendants. Where the cornea is involved, it is rather an indication for the freer use of the argyrol; as has already been pointed out, argyrol does not act injuriously on the corneal tissue. It is a very great advantage

in the treatment of these cases to be able to entrust the patient's attendants with such a powerful agent as argyrol, and to feel quite sure that, although using it freely, no harm can possibly be done, even by excessive zeal.

I have found argyrol also of great service in dealing with ulcers of the cornea, associated with conjunctivitis. It is peculiarly serviceable in these cases, as we can use it freely without the slightest fear of any damage to the cornea, and hence by rapidly curing the conjunctivitis, bring the consequent ulcerative process to a speedy termination.

Even apart from conjunctivitis, in foul ulcers of the cornea, I have seen great benefit from the use of argyrol, no doubt from its powerful bactericidal action on the septic surface of the ulcer. I have used it both as a 20 to 30 per cent. solution, painted over the surface of the corneal ulcer, and as an ointment inserted into the conjunctival sac. When using the argyrol in ointment form, I employ it weaker, 5 and 10 per cent., as it remains longer in the conjunctival sac when employed in this way, and is apt to irritate when employed as an ointment in greater strength than this. In septic ulcers of the cornea, great benefit was frequently derived from the use of the following ointment :—

By		
Argyrol	...	gr. vi to xii.
Holocaine	...	gr. i.
Atropinæ Sulph.		gr. $\frac{1}{2}$.
Vas. alb.	...	3 ii.

S.—The ointment to be introduced into the conjunctival sac two or three times daily.

The ointment melting in the conjunctival sac is smeared over the surface of the cornea, and so acts upon the foul ulcer. The holocaine relieves pain, and is itself a bactericide. The combination of the argyrol, holocaine, and atropine gives a powerful bactericidal, analgesic, and sedative effect, which I have found most beneficial in many case of septic ulcer of the cornea.

In all forms of blepharitis the treatment with argyrol will be found most effective if carried out in a proper manner. In these cases I have employed a 30 per cent. solution, and rubbed it well in to the edges of the lids with a brush, the bristles of which must be firm and not too soft. A very good plan is to take a camel hair brush, cut off two-thirds of it and the remaining third, which is left, is tolerably firm and forms a very good medium for applying the argyrol solution in these cases. All scabs and crusts must be very carefully removed from the edges of the lids, and with the firm stump of the brush the argyrol

solution is to be scrubbed well into the edges of the lids, until they are thoroughly soaked with it. In bad cases this should be done night and morning, in milder cases once daily, and as the conditions improve, every second or third day. When the argyrol is applied in this way it penetrates into the bulbs and roots of the eyelashes, destroying all micro-organisms lurking there, and always producing a very rapid improvement in the condition. There is no method of treatment which will produce such excellent results as this, in such a short period and with so little discomfort to the patient. To be effective, however, it must be carried out in the proper way, not by simply painting on the solution, but by scrubbing it well into the tissues with a fine brush. The patient or the friends can be entrusted with this method of treatment, but they must be carefully instructed and shown exactly the proper method of carrying it out efficiently.

In diseases of the tear-passages, argyrol is a most valuable therapeutic agent. I have observed that when argyrol is dropped into the conjunctival sac, the solution passes into the lacrymal sac, nasal duct, and nose, so that when the patient blows his nose, the handkerchief is stained brown with the argyrol solution, an appearance which often alarms patients, and regarding which I inform them in advance. It is well to know that argyrol stains on linen are not permanent. The fresh stains can be removed quite readily by hot water, and when dry they can be washed out very readily, if previously moistened by a saturated solution of potassium iodide.

When the nasal duct is not entirely obstructed, the argyrol can thus be applied to the whole lacrymal tract, by simply dropping it into the conjunctival sac.

In such cases it rapidly effects a marked improvement by bringing the mucous membrane lining the tract into a healthier condition.

In chronic *blennorrhœa* of the lacrymal sac argyrol is of great utility. It can be injected into the sac in 10, 15, or 20 per cent. solution. It is better to begin with the 10 per cent. solution, then use the 15 per cent., and, finally, the 20 per cent. If the strength is gradually increased in this way, it causes little or no irritation. I prefer to leave the solution for some time in the sac, as in this way it thoroughly penetrates into all the recesses of the mucous membrane lining the sac.

I have learned from my own experience and from that of others a source of danger in the injection of argyrol into the lacrymal sac, and hence I use this method of treatment with a considerable amount of caution. We are all familiar with the fact, that when injecting solutions into the lacrymal sac, a sudden movement

of the patient or some other accidental cause may force the nozzle of our syringe through the mucous membrane, and thus the fluid is injected into the tissues round the sac. When the fluid is of such a nature as boric solution, this is of no consequence, as it becomes rapidly absorbed without doing the slightest injury of any kind. When this accident happens with an argyrol solution, it is a much more serious matter. The argyrol, which has great penetrative power, rapidly diffuses itself through the subcutaneous tissues, and the patient's eye is surrounded by a bluish-black zone, which looks very alarming. It has exactly the appearance of a very bad "black eye" due to injury. This great discolouration gradually disappears just like a subcutaneous ecchymosis, but much more slowly. It never, however, entirely disappears. There is always left a certain amount of delicate staining of the skin of a pale greyish character, so that it produces a very slight but permanent marking. This is a possible danger which should always be borne in mind when injecting argyrol into the lacrymal sac, and every precaution should be taken to avoid this complication. Anything approaching to distention of the sac should be carefully avoided, and more than a few minims of the solution should never be injected at a time.

In many cases of blennorrhœa of the lacrymal sac, I have employed argyrol with great advantage, without injecting it into the sac. I slit the canaliculus freely into the sac, and by probing try to establish a free passage into the nose. When this has been done the patient is instructed, after expression of the contents of the sac, to drop into the internal canthus of the eye, a few drops of 20 per cent. solution of argyrol two or three times daily. Some of this gradually finds its way into the sac, of course in a diluted form, as can be proved by the stains on the handkerchief after blowing the nose and also by the contents of the sac on expression being found to be coloured brown. In this way the argyrol, though in a much diluted form, is for a considerable time each day brought into contact with the whole lacrymal tract and in many cases with striking benefit to the patient.

In this way I have dealt successfully with many cases of chronic blennorrhœa of the lacrymal sac simply by free slitting of the canaliculus, probing, and the regular use of 20 per cent. argyrol drops, without any injections into the sac.

It has been claimed for argyrol that it does not stain the conjunctiva. Experience, however, does not absolutely confirm this claim. I have seen several cases where slight staining of the conjunctiva was produced by the prolonged use of argyrol. The staining was but slight, and was only seen in a very few cases, when the patient had been using the drops several times

daily for periods of from 6 to 12 months. The tendency to stain the conjunctiva permanently is less than that of any of the other silver salts, protargol included, and is only seen after very prolonged use. As this danger exists, however, it is advisable that the use of argyrol should not be prolonged indefinitely, and that the patient should be kept under observation.

The slight staining of the conjunctiva after very prolonged use, and the faint but permanent staining of the skin when it accidentally gets into the subcutaneous tissues, as in diseases of the tear passages, are the only possible dangers in the use of argyrol, and both of these can easily be avoided with a little care and circumspection in the use of the new product.

Having so few attendant dangers, and possessing the great advantage of a complete absence of discomfort in its use, such a powerful bactericide as argyrol is without doubt a very valuable addition to the therapeutic agents which are now at the disposal of the ophthalmic surgeon.

THE LOCALIZATION OF FOREIGN BODIES IN THE EYE.*

BY

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In injuries to the eyes from foreign bodies, the first thought of the surgeon is whether the substance causing the injury has simply inflicted a punctured wound of the globe or has penetrated and lodged within the eyeball or passed through into the orbit. In a large proportion of instances the injury implicates the cornea and lens, the latter in a few hours becoming hazy, or a wound of the sclera is associated with haemorrhage or opacity of the vitreous, so that a satisfactory view of the eyeground is impossible with the ophthalmoscope. An incised or punctured wound of the eyeball made by a foreign body cannot be accepted as positive evidence of the lodgment of the substance in the eye. I have examined several cases in which there was a wound of the cornea and a corresponding cut in the lens, but no foreign body was shown by the *X*-rays, and the subsequent history proved the correctness of the radiographic findings.

*Lecture delivered at the Philadelphia Polyclinic.

With the media clouded, the diagnosis of the lodgment in the ocular structures of a foreign body, consisting of iron and steel, may be made by the sideroscope, preferably the improved instrument of Hirschberg; by a magnet of strong attractive power; or by means of the Röntgen rays. The sideroscope is not extensively employed, although it is an instrument of recognized value in injuries from iron and steel. Its sensitiveness to external influences, the uncertainty of its readings in small bodies in the posterior part of the eye, and the fact that it fails to indicate lodgment of the metal in the orbit in instances of complete perforation of the globe, renders it inferior to the Röntgen rays.

The more powerful forms of electric magnets operated upon street lighting circuits are extensively employed for the purpose of extracting the metal without previous attempts at diagnosis other than the appearance of the metal after the application of the current. The magnet, like the sideroscope, is valueless, however, in injuries from copper, bronze, many of the steel alloys, and also in injuries from glass and stone. Even in injuries from iron and steel, the surgeon, in instances in which the magnet fails to extract a body, or to elicit pain, cannot be certain that the eyeball does not contain a splinter, nor will the magnet furnish information as to whether the body has penetrated the globe and lodged in the orbit. Excellent results have been achieved by operators of large experience in the use of the Haab magnet, but it is equally true that serious injury has followed its use in less skilful hands, injury that might have been avoided in many instances if the operator had knowledge of the size of the metal in the eyeball and its approximate position.

Of the several methods of diagnosis the Röntgen rays must be regarded as the most certain means of determining the presence of a foreign body in the eyeball or orbit. Its value over other methods is shown by the positiveness of its results in all kinds of metal, and, under certain circumstances, in injuries from glass and stone, and the fact that it indicates not only the presence of the foreign substance but also its position in the eyeball or orbit. It is conceivable that a metallic body may be so small that the shadow cast on the plate cannot be recognised, but so far in my experience in over one hundred cases of ocular injury in which the X-ray examination was negative, no foreign body was found in the few cases in which enucleation was rendered necessary by purulent inflammation, nor did the subsequent history of the remaining cases indicate that a foreign body was in the globe. I believe that a splinter of metal that is of sufficient size and weight to strike and to penetrate the coats of the eyeball will be of sufficient density to cast a shadow on the photographic plate.

All methods of localisation that can lay any claim to accuracy are based upon the triangulation of the planes of shadow of the foreign body at two exposures with the tube in different positions, and studied in relation to the shadows cast by one or more points of known position near the eyeball. The fixed points from which the measurements are made may be small lead discs or fuse wire attached to the skin of the eyelid, or ball-pointed steel rods which rest against the skin or are at a measured distance from the eyeball. For the past eight years I have employed the principle of triangulation in the localisation of foreign bodies in the eye, and the knowledge gained of the size of the metal and of its situation has resulted in preserving many eyes that would otherwise have been lost.

The localisation apparatus employed consists of a light metal frame for holding the photographic plate, and is provided with a



Fig. 1.—Localisation apparatus, attached to head of patient.

movable arm supporting two ball-pointed rods. These rods are parallel to each other and to the plate, and the centre of each ball is at a fixed distance apart. The holder is attached by tapes to the side of the head. The patient lies upon a table, and an object is placed several feet away so that upon fixation of this point the visual axis of the injured eye is parallel with the photographic plate. The ball-pointed rods are then moved until one ball is opposite the centre of the cornea, the other taking a position to the temporal side and close to the plate. After the apparatus has been adjusted the distance of the ball from the apex of the cornea is measured. A modified form of

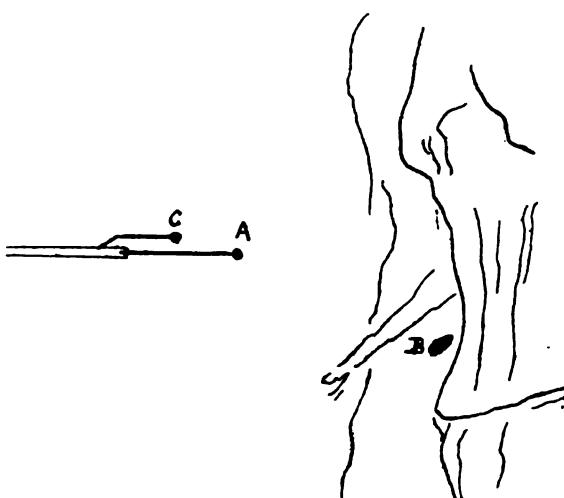


Fig. 2.—Outline Drawing of Radiograph made with Tube slightly above Plane of Indicators. A, ball opposite centre of cornea. C, ball to temporal side. B, foreign body.

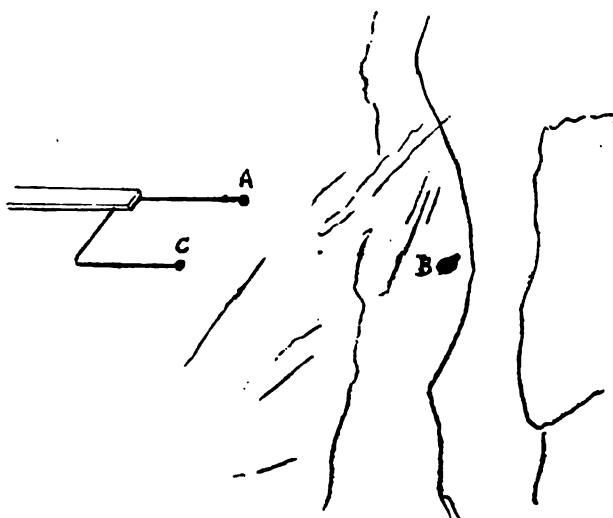


Fig. 3.—Outline Drawing of Radiograph made with Tube below Plane of Indicators. A, ball opposite centre of cornea. C, external ball. B, foreign body.

the apparatus consists of a small platform with two adjustable uprights, one of which supports the plate and indicators, and, in conjunction with the second upright, keeps the patient's head in position during the exposures.

In making the exposures the X-ray tube is placed from 18 to 20 inches towards the uninjured side of the head and slightly anterior, so that the rays pass obliquely through the injured eye and cast a shadow on the plate of the two ball-pointed rods and the foreign body in the eyeball or orbit. Since the tube is anterior to a line passing through the two balls, the shadow of the ball nearest the tube (the one opposite the centre of the cornea) will be thrown back of the shadow of the ball nearest the plate.

Two plates are made, one with the tube slightly above or in the same plane with the indicating rods, and the other at a short distance below this plane. The first plate will show the two indicating rods as a single line or as two slightly separated lines, the lower representing the indicator opposite the centre of the cornea, while the second plate will similarly show the shadow of the indicators separated, the central indicator being above that of the external.

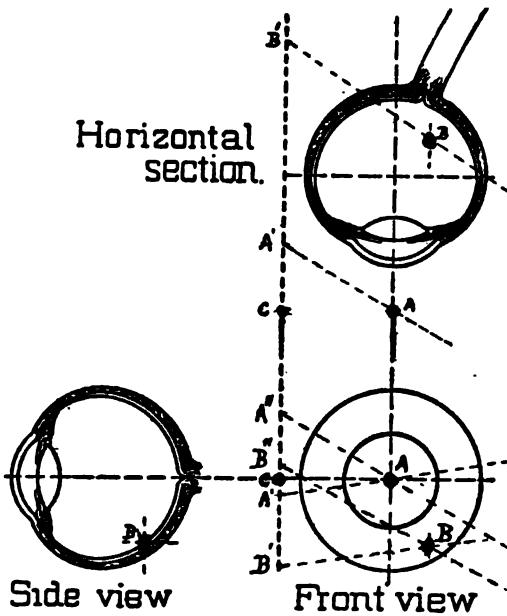


Fig. 4. Diagrams representing Sections of Adult Eyeball. (B, foreign body.)

No attempt is made to determine the angle of the tube in respect to the indicators or the photographic plate, since this is readily secured by noting the position that the shadow of one ball-pointed rod bears to that of the other. Only two measurements are required—the distance the centre indicator is from the

apex of the cornea, and the distance of the anode of the tube from the external ball-pointed rod.

The planes of shadow of the foreign body may be represented by threads, as in the localization method of Mackenzie Davidson, the crossing of the threads representing the situation of the foreign body in respect to the fixed points of measurement. In the method I employ, diagrams are used to represent a vertical and horizontal section of the adult eyeball, and lines drawn upon the sheet to indicate the crossing of the planes of shadow. In the illustration (Fig. 4) are diagrammatic circles to represent the eyeball, a spot (A) at the centre of the vertical section indicating the position of the ball opposite the apex of the cornea, and (C) the position of the second ball, the distance of one from the other corresponding to the fixed separation at the time of exposure. On the horizontal section of the globe is shown the two ball-pointed rods, one (A) at the previously measured distance from the centre of the cornea, and the other (C) at the fixed distance to the temporal side.

An examination of the two radiographs shows, as previously stated, that the shadow of the ball opposite the centre of the cornea is posterior to that of the ball towards the temporal side. The position of the tube at the time of exposure may, therefore, readily be determined by measuring the distance that the shadow of the centre ball (A, Fig. 2) is posterior to the shadow of the ball (C) to the temporal side, entering this distance above the external ball (C) on the diagram representing the horizontal section, and drawing a line from this point (A₁) through the centre ball (A) to the distance that the anode of the tube was away from the external ball at the time the exposure was made. This determines the source of the rays at this exposure. Knowing the position of the point on the anode of the tube from which the rays emanated, we have only to measure the distance the shadow of the foreign body is back of the shadow of the external ball, enter this above the spot (C) representing the external ball on the horizontal section of the globe, and draw a line from this point (B₁) to the previously determined position of the anode of the tube. This line gives the plane of shadow of the foreign body.

The same plan is followed in determining the planes of shadow of the foreign body on the vertical section of the eyeball. If the tube in one exposure is in the same plane as the two indicating rods, the plate will show a single line to represent the shadow of the two rods. If the shadow of the centre indicator is below that of the external indicator, the tube must have been above this plane, whereas if the shadow of the centre indicator is above, the tube must have been below.

In the first exposure (Fig. 2) the tube was slightly above the plane of the indicators. If the distance that the shadow of the centre ball-pointed rod is below the shadow of the external rod is entered on the vertical section below the spot (C) representing the external ball, and a line drawn from this point (A₁) through the centre ball to the distance the tube was away at the time of exposure, the exact source from which the rays started is found. With this position known, the plane of shadow of the foreign body is determined by drawing a line from this point to a spot (B₁) below the external ball on the vertical section of the eye corresponding to the distance that the shadow of the body was below the shadow of the external indicator.

In a like manner is found the plane of shadow of the foreign body at the second exposure. The distance that the shadow of the centre rod (A) Fig 2, is above the shadow of the external rod (C) is entered on the vertical section (front view, Fig. 4) above the spot (C) and a line drawn from this point through the spot (A) to the distance of the tube. A line from the source of the rays to the point (B''), which measures the distance the shadow of the body is above the shadow of the external rod (C), gives the plane of shadow of the body at this exposure. The crossing of this plane with the plane from (B') represents the position in the eye of the foreign body as respects its location above or below the horizontal plane of the globe and to the nasal or temporal side of the corneal summit. Where a vertical line from the point of crossing of the planes of shadow in the vertical section of the globe intersects the plane of shadow of the body as previously found and recorded on the horizontal section is the situation of the body back of the corneal centre. A side view of the eyeball, with the position of the foreign body marked, is also shown in Fig. 4, the measurements for which are made from the two other diagrams.

Accuracy of localization has been fully proven in a large number of cases in which magnetic extraction failed, and enucleation was rendered necessary.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

COLOURED VISION AFTER CATARACT EXTRACTION.

BY
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A large number of the patients operated on in Madras for cataract are in the habit of complaining that everything they see appears coloured after operation. Rarely, a patient complains of seeing red or green, but every week one hears from a number of those who have had their lenses extracted the remark : " I see everything as if it were blue."

I have had a record taken of 250 consecutive cases operated on between February 4th and May 13th, 1905, and the following table shows the results obtained. As most of the cataract patients are discharged on the fifth day after operation, the observations have been limited to five days. An Indian patient is so erratic in his attendance that I have not attempted to carry on the statistics after the date of discharge from hospital.

Saw white throughout	...	...	...	...	...	110
Saw blue throughout	...	...	...	...	...	16
Began with blue and ended in white	...	...	...	...	...	73
Began with white and ended in blue	...	...	...	...	...	10
Began and ended with white and saw blue in the middle	...	...	...	...	...	19
Began and ended with blue and saw white in the middle	...	...	...	...	...	11
Began and ended with blue and saw black in the middle	...	...	...	...	...	1
Saw red throughout	...	...	...	...	...	1
Began with red and ended in white	...	...	...	...	...	2
Began with red and ended in blue	...	...	...	...	...	1
Saw red, blue, and white in turns	...	...	...	...	...	3
Saw yellow and green	...	...	...	...	...	3
TOTAL						250

Excluding the cases into which red, green, and yellow entered, it will be observed that 110 saw white throughout, and 130 saw blue and white or blue alone. I have submitted these two classes to a careful analysis, with a view of finding out whether any accident during operation, any complication of the case before or after operation, or any other condition existed which would explain the disorder of vision. Very careful tables have been drawn up by my Senior Hospital Assistant, Mr. Ratnavelu Pillay, from my notes of the cases. It would be useless to inflict these on the reader, as they show most conclusively that neither the conduct of the operations nor the after-course of the cases can be for a moment held to account for the cyanopsia.

An analysis of the cases under a table of ages has also been made, and suggests that the tendency to cyanopsia after extraction is greater in the decade from 40 to 50 than at any other period of life. When submitted to mathematical methods, the indications are not sufficiently precise to enable one to speak dogmatically, and I am therefore multiplying the observations with a view of clearing up this point. In the meantime I draw attention to the phenomenon, as I am unable to find any reference to it in ophthalmological literature. If any of the readers of THE OPHTHALMOSCOPE can throw light on the subject, I shall be greatly obliged to them for their help or advice.

Ages of Patients.	Saw White all Through.		Saw Blue at Some Time.		Saw other Colours.	
	No.	Percentage.	No.	Percentage.	No.	Percentage.
Below 40	9	8·18	8	6·15	2	20
40 to 45	10	9·09	19	14·61	2	20
45 to 50	23	20·90	42	32·30	2	20
50 to 55	28	25·45	20	15·38	0	0
55 to 60	29	26·36	29	22·30	2	20
60 to 70	9	8·18	11	8·46	1	10
70 to 80	2	1·81	1	0·77	1	10
TOTAL CASES	110	—	130	—	10	—

The above table shows the percentages calculated on the number in each group. In the following table the percentages are calculated on the total number of patients under review, i.e., on 250.

Ages of Patients.	Saw White all Through.		Saw Blue at some Time.	
	No.	Percentage.	No.	Percentage.
Below 40	9	3·6	8	3·2
40 to 45	10	4·0	19	7·6
45 to 50	23	9·2	42	13·6
50 to 55	28	11·2	20	8·0
55 to 60	29	11·6	29	11·6
60 to 70	9	3·6	11	4·4
70 to 80	2	0·8	1	0·4
TOTAL CASES	110	—	130	—

The red cases have been excluded, as their number is too few.

NOVELTIES.

METAL CASE OF CHALK'S OPHTHALMIC BOTTLES.

The firm of W. Martindale, Manufacturing Chemist, 10, New Cavendish Street, London, W., has recently placed on the market a case to hold sterile ophthalmic solutions ready for use. It is exceedingly useful to stand on the specialist's table, and will effectually preserve the solutions from the deleterious effects of the atmosphere, dust, and the like.



As will be noticed from the sketch, the tops of the inner metal cases are engraved with the words "Atropine," "Cocaine," "Eserin" and "Pilocarpine." We understand that, if desired, the names can be engraved to suit individual requirements. The price of the box is 15s. complete, the solutions being extra, according to the wish of the ophthalmic surgeon.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—BACTERIOLOGY.

- (1) Schottelius, E.—Bacteriological investigations of measles conjunctivitis. (*Bakteriologische Untersuchungen ueber Masernkonjunktivitis.*) *Klin. Monatsbl. f. Augenh.*, 1904, I., p. 565.
- (2) Gourfein.—The rôle of saprophytic micro-organisms in post-operative infections of the eye. (*Le rôle des micro-organismes saprophytes dans les infections post-opératoires de l'œil*) *Rev. méd. de la Suisse Romande*, 20 janvier, 1905.
- (3) Higley, H. A.—The rapid bacteriological diagnosis of diphtheria. *Medical Record*, 1st April, 1905, and *Medical News*, 8th April, 1905.

- (4) **Pfeiffer and Kuhnt**.—A short notice on the bacteriology of trachoma. (*Eine kurzer Notiz zur Bakteriologie des Trachoms.*) *Zeitschrift für Augenheilkunde*, April, 1905.
(5) **Pollock, W. B. Inglis**.—The bacteriology of conjunctivitis. *Trans. Ophthalmological Society*, Vol. XV, 1905.

(1) In the conjunctival secretions of eighty cases of measles conjunctivitis, **Schottelius** found virulent streptococci, and in many cases also staphylococcus albus and aureus.

A. BIRCH-HIRSCHFELD.

(2) **Gourfein** describes three cases of post-operative infection by micro-organisms commonly present in the healthy conjunctiva and usually supposed to be mere saprophytes. The customary antiseptic precautions were adopted in all three cases, and in one alone was there prolonged operative interference. In one case iritis supervened on the second day after extraction of cataract. The bacillus *candicans* was found in cultures, and iritis was set up by the injection of that organism in animals. The secondary cataract was removed with success at a later stage, although the *B. candidans* and other saprophytes were present at the time in the conjunctival sac. In a second case of cataract extraction, in which the conjunctiva and lacrymal secretion were bacteriologically normal, iritis set in on the sixth day. A pure culture of the *xerosis* bacillus, obtained from the inflamed eye, produced suppuration when injected into the eyes of animals. In the third case, also one of cataract extraction, suppurative iritis supervened on the third day. Cultures from the conjunctival secretion, made before operation, showed a large bacillus and some cocci commonly found in the healthy conjunctiva. Cultures from the pus showed staphylococci and the *B. mesentericus*. Iritis was set up by injecting each of those organisms into the eyes of animals. Gourfein concludes that the micro-organisms commonly found in the healthy conjunctiva, may, under certain conditions, become virulent as regards eyes that have been operated on, say, for cataract, with the consequence that rigorous antisepsis now and then avails nothing against post-operative infections.

ROSA FORD.

(3) **Higley** says that by the following method it is possible to make a rapid (fifteen-minute) and sure diagnosis by the examination of stained smears made directly from deposits or false membranes in cases which present themselves for differential diagnosis of diphtheria. The material from which the smear is made is obtained by passing lightly over the false membrane a sort of curette formed from a wire-looped needle flattened by filing at its curved extremity. The following staining fluids, which should be freshly prepared, are used: No. 1. Five drops

of Kühne's carbolic methylene blue in seven cubic centimetres of tap water. No. 2. Ten drops of carbolfuchsin in seven cubic centimetres of tap water. Method of application.—(1) Fix smear by passing three times through the flame ; (2) apply stain No. 1 for five seconds ; (3) wash with tap water and dry with filter paper ; (4) apply stain No. 2 for one minute ; (5) wash, dry and mount in balsam. When thus stained, the diphtheria bacilli appear as dark-red or violet rods, irregularly stained, often containing polar dots. The unevenness of their contour and mode of division are regularly and distinctly brought out, and these characteristics afford the essential differential points, for other micro-organisms take varying tints, and may appear of the same color as the diphtheria bacilli, so that upon colour alone no differentiation is possible.

(4) **Pfeiffer and Kuhnt** refer to the difficulty in discovering the bacterial cause of trachoma ; they have thought that possibly the organism causing it may be ultra-microscopic. To investigate this they took excised trachomatous fornices, pounded them up with sand in agate mortars and made them into an emulsion with physiological saline solution. This solution was then passed through Berkefeld filters, and afterwards dropped into healthy eyes—up to ten drops a day for weeks. In all these cases the result was negative, from which they conclude that the cause of trachoma is probably not in the nature of ultra-microscopic organisms.

A. LEVY.

(5) It is difficult to analyse **Pollock's** paper, which ranges over the whole subject of the bacteriology of conjunctivitis. It may be pointed out, however, that he alludes to cases of *acute* conjunctivitis due to the diplobacillus of Morax-Axenfeld. These inflammations are usually milder than those associated with the Koch-Weeks' bacillus, although the author has seen considerable ecchymosis. Diplobacillary conjunctivitis may occur at any age, shows very little tendency to spontaneous cure, and may be accompanied by ulceration of the cornea.

II.—ENCEPHALOCELE.

- (1) **Sachsalber, A.**—A case of occipital encephalocele with anatomical examination of the optic nerve. (*Ein Fall von Enkephalokele occipitalis mit anatomischer Untersuchung des Sehnerven.*) *Zeitschrift für Augenheilkunde*, Ergänzungsheft, 1905.

(2) **Rohmer.**—**Bilateral encephalocele of facial type at the internal angle of the orbit.** (*Encéphalocèle double de l'angle interne de l'orbite à type facial.*) *Archives d'ophtalmologie*, juin, 1905.

(1) **Sachsälber** recounts in full detail the microscopic appearances found in this case. The herniated portion of the brain, including mid-brain, the inter-brain, and a great part of hind-brain, were much damaged and poorly developed. The corpora quadrigemina were absent. The corpora geniculata and optic thalamus were badly developed. The pulvinar could not be differentiated. The optic tracts and nerves were much smaller than normal, being only about one-third the normal diameter.

The retina was thinner, and showed a much smaller number of ganglion cells than normal, and some of the ganglion cells were in a rudimentary form. The central artery of the retina was small and thin-walled, whereas the cilio-retinal vessels were numerous, large, and thick-walled. The structure of the eye-ball itself was, apart from the above, normal.

A. LEVY.

(2) An infant of eight months presented symmetrical tumours, about the size of pigeons' eggs, on each side of the root of the nose, dating from birth. A precise diagnosis could not be made, but Rohmer removed one of the growths, which, when examined pathologically, was found to be in the nature of an hydrencephalocele. Notwithstanding this disconcerting discovery, the other tumour was ablated, an operation followed by death of the infant from meningitis. With this untoward case as a text, Rohmer discusses the diagnosis of encephalocele as it occurs at the inner angle of the orbit, and in doing so quotes two somewhat similar fatal cases reported by Ripoll (*Bull. génér. de thèses méd. et chir.*, p. 74, 1888). In favour of an encephalocele are the facts that the growths may be bilateral and are of congenital origin. Fluctuation and reducibility are often lacking. The induced current as a means of diagnosis is hardly likely to yield positive results, seeing that the tumours, when at the inner angle of the orbit, are small and include little cerebral substance. With regard to exploratory puncture, under suitable precautions that should offer no particular danger. In conclusion, Rohmer discusses the differential diagnosis between encephalocele and such conditions as dermoid cysts, hæmatocoele, hygromata congenital sarcomata, lacrymal tumours, and angiomata. S. S.

III.—AMAUROSIS AND THE INJECTION OF PARAFFIN.

- (1) Mintz.—Amaurosis consecutive to the injection of paraffin.* *Centralbl. f. Chir.*, Januar 14, 1905.
- (2) Rohmer.—Ocular accidents consecutive to injections of paraffin in the nasal region.* (*Des accidents oculaires consécutifs aux injections prothétiques de paraffine dans la région nasale.*) *Annales d'oculistique*, septembre, 1905.

(1) A syphilitic patient, aged 25 years, afflicted with "saddle nose," had a gramme of paraffin injected for the purpose of remedying the nasal deformity. A year after the first operation, Mintz injected one-third of a gramme of paraffin at a temperature of 43° C. by two pricks, one on each side of the nose. Three minutes after the little operation, the patient complained of pain in her left eye. Fingers could still be counted, although shortly afterwards there was complete blindness, accompanied by vomiting. As regards the existence of embolism of the central artery of the retina, ophthalmoscopic examination was negative. There was paresis of some of the extrinsic muscles of the eye. In the sequel, atrophy of the optic nerve supervened. Mintz believes that the injection was followed by thrombosis of the external nasal vein, a condition which then extended by continuity to the ophthalmic vein, and, later, to the central vein of the retina. In this way he explains the amaurosis.

(2) Rohmer describes a case of amaurosis after the injection of vaseline-paraffin into the neighbourhood of the root of the nose; quotes the instances already published of this condition; explains the etiology of the complication; and, finally, enters into detail with regard to the *technique* of the injections. The facts of the case are briefly as follows.—A woman of 42 years had suffered from syphilitic necrosis of the nasal bones, which had produced marked deformity of the nose. A medical man made a series of five or six injections at intervals of two or three weeks. At the time of the last injection the woman complained of a sharp pain in her left eye, together with unilateral loss of sight. The pain was intense, lasted for some days, and caused the patient to lose consciousness. The eyelids were red and swollen. Embolism of the central artery was diagnosed the day after the accident. Rohmer, who examined the woman for the first time about a year after the accident, found in the left fundus enormous flame-shaped haemorrhages

* Somewhat similar cases have been reported by Leiser (*Vercinsbeil. der Deutsche med. Woch.*, April 3, 1902), by Moll (*Ann. des malad. de l'oreille, etc.*, 1902, p. 520), and by Hurd and Holden (*Medical Record*, July 11th, 1903).—EDITORS,

intermingled with areas of disseminated choroiditis (V.= nil). The other eye (V.= 7/10) presented discrete patches of choroiditis. Rohmer considers that the choroiditis in both eyes was due to syphilis, and that the immediate cause of the blindness of the left eye must be sought in thrombosis of the retinal veins. Rohmer mentions, but gives no details of, another case of paraffin amaurosis, which occurred in Nancy.

As regards the *technique* of the operation, Rohmer believes that not more than three grammes of a paraffin melting at 41° or 42° C. should be gently injected with a Lüer's syringe, the field of operation being limited, as far as may be, by pressure with the fingers of one or several assistants. S. S.

IV.—SYPHILITIC AFFECTIONS OF THE CORNEA.

Antonelli, A. and Benedetti, A.—Rare syphilitic affections of the cornea. (*Les affections syphilitiques de la cornée à forme rare.*) *Recueil d'ophtalmologie*, juillet, août, et septembre, 1905.

Antonelli and Benedetti review all cases of syphilitic diseases of the cornea which they have been able to find in ophthalmic literature, and add some of their own. They limit the term "rare" to the following conditions:—

1. Chancre of the cornea.
2. Syphilides of the cornea.
3. Gummata of the cornea.

I. Chancre of the cornea.

The authors give details of Binet's case, which began as an acute simple conjunctivitis, and passed on to a keratitis.¹ Three weeks from the onset of symptoms an ulcer with a grayish base appeared in the lower and outer part of the cornea. This was accompanied by much pain in the eye and peri-orbital region, which yielded to local remedies only when reinforced by antisyphilitic constitutional treatment. The ulcer healed up in seven weeks, but four months after the infection, the patient developed a papular rash, and two months later, an erosive papule appeared on the tongue. Both of these conditions quickly disappeared after a few weeks' antisyphilitic treatment.

Salmon² found similar changes as the result of experimental inoculation of the cornea in monkeys (*macacus cynomolgus*). After an incubation period of 33 days, an acute conjunctivitis appeared in the infected eye, and within a week this was followed by a marginal keratitis with a local semilunar thickening at the

lower part, and with considerable inflammatory reaction in the iris and ciliary processes. Microscopically, the lower part of the cornea showed thickening of the epithelium, due to an increase in the number of its layers. Between the epithelial cells were some leucocytes, chiefly mononuclear, and some cells containing pigment. The adjacent blood-vessels showed proliferative endarteritis. The ciliary processes were similarly infiltrated with mononuclear leucocytes. The upper part of the cornea, the aqueous humour, and the vessels of the conjunctivitis and iris, contained polynuclear leucocytes, as the result of secondary infection.

II. Syphilides of the cornea.

These include :—(a) Ulcerous keratitis.

(b) True primary keratitis punctata.

(c) Nodular keratitis.

(a) ULCEROUS KERATITIS is the most common manifestation of secondary or secondo-tertiary syphilis and usually occurs along with papular syphilide of the skin and mucous patches. These ulcers generally occur near the limbus; they have a greyish base, are associated with a moderate amount of diffuse infiltration, and are readily cured when local treatment is combined with constitutional antisyphilitic remedies. In our present state of knowledge the diagnosis of these ulcers rests on the personal history of the patient, the presence of syphilides of the skin and mucous membranes, and, lastly, the result of treatment.

(b) TRUE PRIMARY KERATITIS PUNCTATA. Also called K. pointillée, K. punctiforme (Hock) and K. punctata anterior (Mauthner).

This condition is characterised by the appearance, in the posterior layers of the cornea, of a greyish or greyish-yellow haze due to the deposit of a variable number of dots of the size of a pin's head or smaller. These dots are clearly defined from one another, and are very suggestive of grains of semolina. The punctiform opacities are peculiar in that they disappear and reappear with great rapidity. Cases of this kind have been recorded by Villard³ and by Stephenson,⁴ among others. This form of keratitis is accompanied by a minimal amount of ciliary injection and by trivial subjective symptoms. There is an entire absence of any decided iritis or iridocyclitis. The condition must not be confounded with the so-called keratitis punctata secondary to anterior serous uveitis, although both conditions may occur together.

True primary keratitis punctata is, in the opinion of the authors, a nodular, disseminated and punctate form of interstitial keratitis due to acquired syphilis. This view is supported

by Hock's case of acquired syphilis in the secondo-tertiary stage of which there was K. punctata in one eye and a diffuse interstitial keratitis in the other. The prognosis is uncertain. The punctate infiltrations often disappear quickly and completely, but they may persist for a long time and even leave small interstitial leucomata, which give rise to considerable visual trouble when they occupy the pupillary area.

(c) NODULAR KERATITIS (Wickerkiewicz) is apparently a form intermediate between K. punctata and K. gummosa. It occurs in infants, of 2 to 14 years of age, who present marked stigmata of hereditary syphilis or definite signs of rickets or of scrofula. A small yellowish-grey spot appears a little distance from the edge of the cornea. This is accompanied by a little injection of the bulbar conjunctiva, together with slight photophobia and blepharospasm. As a rule, the subjective symptoms are very mild, but, in children with puffy faces, oedematous lids, and enlarged suboccipital and cervical lymphatic glands, they are more severe. Recovery is slow, but there is no tendency to ulceration and eventually resorption becomes practically complete. This condition differs from strumous keratitis, in that the opacity is more yellow than grey; it stands out more above the level of the cornea; it lacks superficial vessels, but receives fasciculi of deep vessels; it does not tend to break down or to lead to deep cicatricial changes; and, although it does not improve under the local treatment so successful in strumous keratitis, it gives way to local remedies when combined with general mercurial treatment, tonics, and superalimentation. Valuable help in diagnosis would be afforded by the discovery of rudimentary ophthalmoscopic lesions in the fundus oculi.

III. Gummata of the cornea.

There is no reason for excluding the possibility of tertiary granulomata of the cornea, but some authorities deny their existence. Cases have been described by Follin, Rollet, Magni, Desmazes, Gayet and Denarié, Vinsonneau, and others. The authors add another case. Gummata are more often seen late in grave hereditary syphilis and along with parenchymatous keratitis. The granulomatous deposits may be small and numerous (miliary form), or isolated and large (solitary or nodular form).

The MILIARY FORM may be found in cases of acquired syphilis, but is more likely to be seen in adolescents, who suffer from hereditary syphilis.

The NODULAR FORM is more likely to be met with in acquired syphilis, and may occur without true interstitial keratitis.

These deposits may appear as small or large yellowish-grey spots in the cornea, which also shows some interstitial keratitis, as a rule. These granulomata look like abscesses, and often bulge either into the anterior chamber or towards the surface of the cornea. The endothelium of Descemet's membrane and the surface epithelium, however, generally remain intact. The iris and ciliary processes are but little involved, and the subjective symptoms are slight. Histologically, these foci are seen to consist of collections of leucocytes in the deeper layers of the cornea, and are comparable to abscesses, except for the absence of any ulcerative tendency. The prognosis is favourable. The deposits are quickly absorbed, leaving little or no sign of their previous existence, if the cases are vigorously treated by intramuscular injections of biniodide or perchloride of mercury.

There is a form of parenchymatous keratitis which is exceptionally grave, since it resists all treatment, and is apt to lead to total gummatous infiltration and destruction of the cornea. It has been called heredo-syphilitic keratomalacia. It is difficult to decide whether it is a true gummatous condition, or a keratomalacia, due to associated conditions, such as extreme cachexia or keratitis neuroparalytica from syphilitic affection of the fifth nerve.

J. JAMESON EVANS.

REFERENCES.

1. Binet.—*Thèse de Lyon*, 1883.
2. Salmon.—*Société de Biologie*, 11 juin, 1904.
3. Villard.—*Annales d'Oculistique*, octobre, 1904.
4. Stephenson.—*The Ophthalmoscope*, November, 1903.

V.—MELANOSARCOMA OF THE UVEA

Schiék, Franz.—Melanosarcoma of the uvea in its various forms. (*Das Melanosarcoma der Uvea in seinen verschiedener Erscheinungsformen.*) von Graefe's Archiv f. Ophthalmologie, Bd. 60, 3 Heft, Juli, 1905.

The classification of the different forms of uveal sarcoma has always been far from satisfactory. The distinction between pigmented and unpigmented forms has been fairly generally accepted, although even there difficulties with regard to the haemato-genic or chromophoric origin of the pigment have frequently arisen. The distinction between round and spindle-celled sarcoma is generally more or less insisted on, but we all know how difficult it is to draw the line in any special case, as both forms are almost always met with together, although in varying proportion. Many other forms have been described and are enumerated in text-books as special sub-divisions, viz.:—

the angiosarcoma, the peri- and endothelioma, the combination of glioma and sarcoma, of sarcoma and tuberculosis, the alveolar and giant-cell sarcoma, not to mention the genuine mixed forms of gliosarcoma, myxosarcoma, chondro- and myosarcoma. The very important researches of Ribbert on the pathogenesis of the melanosarcoma seem to point to a deduction which, if Schiek's most interesting and clearly reasoned arguments, based on selected anatomical specimens, are accepted, will not only greatly simplify the subject, but will also increase our understanding of this important pathological subject. Schiek argues that pigmented and unpigmented, as well as round and spindle-cell sarcoma, are not tumours *sui generis*, but only different stages of the same affection, thus repeating the same progressive development which takes place in the embryonal uvea; here, too, the cells are first of the small round type, and assume in gradual evolution, first the elongated shape, and then their chromophoric character. In the same way we find in the most recent parts of the sarcomatous structure small round cells, in the older strata spindle cells, which are also present in quite the same shape in the melanotic parts (as seen in bleached sections), while the pigmented form is but the third stage of the fully-fledged krometophroma. The young small round cells are most often grouped round the blood-vessels, and thus forms closely resembling glioma are sometimes met with. It must be admitted that there are other cellular elements in the uvea, which *a priori* might be deemed to form sarcomatous growths; they are the fixed unpigmented cells, and the cells of the vascular walls; their proliferation would indeed lead to unpigmented sarcoma. But it is very doubtful whether any case of this kind has ever been recorded, and much more likely that all unpigmented tumours are really only melanosarcoma in its initial unpigmented stage.

R. GRUBER.

VI.—GLIOMA OF THE RETINA.

- (1) Stevenson and Stockdale.—*Glioma retinae*. *Liverpool Med. and Chir. Journal*, January, 1904.
- (2) Snell, Simeon.—A case of bilateral glioma in which the patient's life was saved by excising the two eyes. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 227.
- (3) Wehrli.—On the connection between retinal haemorrhages at birth and glioma of the retina. (*Ueber die Beziehungen der während der Geburt entstehenden Retinal-*

blutungen des Kindes zur Pathogenese des Glioma Retinæ.) *Correspondenz-Blatt für schweizer Aerzte*, Januar, 15, 1905.

- (4) **Ascunce.**—A study of retinal glioma. (*Étude sur le gliome de la rétine.*) *Ann. d'oculistique*, T. CXXXIII, p. 85, février, 1905.
- (5) **Parsons, J. Herbert.**—A clinical lecture on glioma of the retina. *Clinical Journal*, March 22nd, 1905.
- (6) **Parsons, J. Herbert.**—A case of glioma retinæ in a shrunken globe. *Royal London Ophthalmic Hospital Reports*, March, 1905.
- (7) **Snell, Simeon.**—A further instance in which glioma occurred in more than one member of the same family. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 261.

(1) **Stevenson and Stockdale** consider their case to be really one of endothelioma, having its origin in the endothelium of the perivascular lymphatic spaces surrounding the retinal vessels.

(2) Snell excised one eye of a child, aged 22 months, for glioma. Nearly two years later, a similar condition necessitated the removal of the other eye. The child was in excellent health five years after the second operation. Diagnosis confirmed microscopically. "Permanent recovery after an eye has been enucleated for glioma," remarks Snell, "is not such a rare event as was formerly supposed. Recovery largely depends on an early diagnosis enabling the removal of the globe to be performed whilst the growth is confined to the retina, and on the division of the optic nerve as far back as possible from the eye." S. S.

(3) **Wehrli** puts forward the theory that the exciting cause of retinal glioma in the majority of cases is traumatism sustained during birth. In a thousand cases of the same congenital malformation, one case goes on to tumour-formation, while the rest remain normal. He explains this in the following way: an injury at birth causes retinal haemorrhage, leading to tearing and destruction of tissue. Reactive cell-growth sets in, and produces healing, but if the cells are embryonic, the reaction goes further, and leads to abnormal growth. Knapp, Wintersteiner, Mackenzie, Himly, Lerche, Hirschberg, Leber, Mittendorf, Lincke, and v. Graefe, are against the traumatic theory, the first-named stating that where trauma is undoubted, there the diagnosis is more than doubtful, and where the diagnosis is

certain, the trauma seems to be only occasional. Accidental injuries as a factor are mentioned by Mohrenstein, Wardrop, Horner, Wishart, Beck, Kulck, Mandt, Twinning, Stelling, Walzberg, Steinheim, and Bull.

Wehrli bases his theory on the following facts and opinions :—

(a) *Pathologico-anatomical.*—(1) Hippel found histologically 10 cases of haemorrhage in 24 new-born infants' eyes. These were limited almost entirely to the retina. Two were choroidal. Naumoff concludes (i) that changes occur in the eyes even in perfectly normal births ; (ii) more frequently, however, where there was a narrow pelvis in the mother ; and (iii) that the origin of the haemorrhage is in connection with the long duration of the birth-act. Schleich mentions that haemorrhages do not occur more often in children born with operative interference than in natural labour. V. Hippel thinks the malformed retina more inclined to haemorrhage than the normal. (2) *Ophthalmoscopically*, blood extravasations of the retina have been observed in new-born children by Schleich, Königstein, J. Berrum, &c., who also, with v. Hippel, think that congenital blindness without signs has been produced by haemorrhages of the retina. Naumoff and others have found permanent ophthalmoscopic evidences of these extravasations in the form of gray or white flecks.

(b) *Clinical.* (1) The age—by far the greatest number of cases occur in the first year of life, pointing to a causal connection between birth and the glioma. Of 467 children, 314 (*i.e.*, over $\frac{2}{3}$) had not completed the third year of life when the parents noticed the first symptoms of glioma. Cases of five years old and upwards (13 per cent. of the cases, of which $\frac{2}{3}$ are of doubtful diagnosis), are probably due to post-natal injuries or to the inflammatory processes common at this age. (2) The occurrence in families. This points to a common cause for all the children attacked in one family, *e.g.*, contracted pelvis in the mother, or other abnormalities protracting labour, and leading to retinal haemorrhages. (3) Occurrence in both eyes. Here again it is significant that retinal haemorrhages are nearly always on both sides. (4) In one-sided cases as in McGregor's case and others, the affection was on the same side in all the children of one family, pointing to a hindrance in the same locality.

This theory holds out a ray of hope to the family doctor, in that it encourages him to endeavour, by obtaining a quick, smooth labour, or even by the induction of premature labour, to prevent in a succeeding child the terrible accident of the first. Neumoff found in 22 premature (7th to 8th lunar month) children's eyes, no single case of blood extravasation. R. FORD.

(4) **Ascunce** gives a very careful account of the history and microscopic anatomy of two cases of glioma. Sections were treated by the methods of Cajal-Golgi, Azoulay, Nissl, Weigert, and Biondi-Ehrlich, in addition to the usual stains, and the appearances seen corresponded with those described by Greeff (*Deutsche medecinische Wochenschrift*, 21 Mai, 1896). From a study of these, and of the literature of the subject, Ascunce draws the following conclusions :—1. The name of glioma retinæ should be reserved for tumours of that membrane formed of neuroglia. 2. The histological characteristic should be sought in the predominance of Deiter's cells and the presence of neuroglia fibres, not in the manner in which the elements of the tumour are grouped. 3. Of the hypotheses hitherto put forward, that of the late development of embryonic neuroglia cells best explains the histogenesis of glioma. 4. The names of glioma endophytum and exophytum, neuro-epithelioma, gliosarcoma, etc., can only serve to distinguish different anatomical forms : they signify nothing with regard to prognosis, and do not indicate any clinically appreciable character. 5. The clinical differences between gliomata depend on the change impressed on the neoplasm by the nature of the tissue in which it is implanted and by the general condition of the patient. 6. The prognosis depends not on any variation in the nature of glioma, but on the completeness or incompleteness with which the tumour is removed.

The descriptions of the tumours and the reasoning on which these conclusions are based should be read in the original.

R. J. COULTER.

(6) **Parsons** reports an "almost incontestable" instance of glioma of the retina occurring in a shrunken eyeball. The main clinical facts follow :—a girl, of 18 months, was brought for advice, because her right eye had been blind since measles at eight months of age. The eye was convergent, and shrunken ; the cornea hazy ; the anterior chamber shallow ; the iris vascular ; the lens opaque ; and the tension minus. No fundus reflex could be obtained. The second eye manifested a vascular and discoloured iris, along with a yellowish-red reflex from the fundus, on which vessels and haemorrhages could be recognised. Excision of the first eye was followed after an interval of 187 days by recurrence in the orbit, and by more obvious changes in the second eye. Later, the latter became proptosed, fungating masses made their appearance, and the eyeball perforated. The child died 236 days after removal of the first eye.

Pathological examination.—After death, both orbits were found to be filled with glioma, which had infiltrated the anterior portion of the scalp and cranial bones, and involved the

chiasma. Microscopical examination of the right eye showed that the iris had undergone fibrosis ; the lens was cataractous ; the ciliary body was detached and degenerated ; the optic nerve was atrophic and cellular ; and the choroid was in a condition characteristic of phthisis bulbi. The retina was not to be recognised as such, except as regards the pigment cells. A layer of connective tissue, of a thickness greater than that of the choroid, lay internal to the latter structure. The vitreous chamber was filled with granular material, staining with eosine, which on careful inspection was found to consist of degenerated cells, along with groups of nuclei, still staining with haematoxylin, and showing here and there calcareous deposits. In Parsons' opinion, the component cells were necrotic, and had no resemblance to leucocytes, neither were they of connective tissue origin. To ordinary glioma cells, the likeness was not striking, but they rather resembled the cells found in the degenerated parts of gliomata. Portions of the orbital and intra-cranial extensions manifested microscopically the typical features of glioma as it occurs in extrabulbar extensions.

Parsons has collected from the literature fourteen cases of glioma of the retina, associated with a shrunken eyeball, and in ten of these the other eye was gliomatous.

S. S.

(7) Snell reports bilateral glioma in a male, aged $2\frac{1}{2}$ years, whose elder sister had succumbed to a similar disease, also affecting both eyes.

VII.—TREATMENT OF TRACHOMA BY X-RAYS AND RADIUM.

- (1) Vassioutinsky, A. G.—Treatment of trachoma by x-rays. *Roussky Vratch*, 1905, No. I, and *Gazette des Hôpitaux*, 12 aôut, 1905.
- (2) Selenevsky.—Radiotherapy in trachoma. *Roussky Vratch*, May 14th, 1905, and *Medical News*, September 9th, 1905.
- (3) Beck, Joseph C.—Radium in trachoma. *Annals of Ophthalmology*, July, 1905.
- (4) Harman, N. Bishop.—Electrical treatment of trachoma. *British Medical Journal*, August 26th, 1905.
- (5) Stargardt.—On the action of Röntgen rays upon the trachoma follicle. (Ueber die Wirkung der Röntgenstrahlen auf den Trachomfollikel.) *Zeitschrift für Augenheilkunde*, September-Oktober, 1905.

(1) **Vassioutinsky** has treated seven cases of trachoma, some of a severe nature, by means of x -rays. He has employed the apparatus of Kohl of 30 to 40 volts and from five to six ampères. The mercury interruptor gave 300 to 400 interruptions a minute. The eye was placed facing the anticathode, at a distance of 25 to 26 centimètres from the focus tube. The left eye was alone subjected to the rays, the other eye being meanwhile kept covered with a metallic *plaque* impenetrable to the rays. With a single exception the right eye was simply washed with a saline solution. The first sitting lasted for five minutes. Then followed a sitting of six minutes, one on each of the five following days, and after that treatment was interrupted for a couple of weeks. After that lapse of time exposures were renewed for five days, each lasting three minutes. A fresh break of a fortnight was succeeded by two exposures of eight minutes and two of ten minutes. A third interruption of two weeks was followed by four seances of eight ten, six, and five minutes. About three months after, the beginning of the radiotherapy, that is to say, a month after the last sitting, Vassioutinsky resorted to the usual treatment of trachoma. Radiotherapy exercised a very favourable influence upon the progress of trachoma. Infiltrations diminished, granulations and pannus disappeared, and all subjective symptoms were notably improved. Infiltration was the first to yield. Pannus regressed well, but granulations, on the contrary, disappeared but slowly. The tissues manifested little tendency to cicatrization. The x -ray treatment was painless, and the author never observed complications as regards the eye nor dermatitis. Comparative study of the effects obtained with x -rays and the customary treatment of trachoma showed that the last was preferable in all cases where the deeper layers of the conjunctiva were not involved (follicular conjunctivitis of the dualists). On the other hand, one could anticipate good results with the rays in cases where other means had failed, as well as in cases where the clinical course of the disease indicated that the ordinary means of treatment would be useless.

(2) At the beginning of this year Cohn, of Breslau, reported seven cases of trachoma and follicular conjunctivitis treated successfully by radium, the action of which he defined as "cito, tuto, et jucunde." **Selenevsky** finds a theoretical basis for the success obtained, inasmuch as it is assured by several investigators that the beneficial effect of radium on malignant growths is due to its power to decompose the lecithin which forms a substantial element of these growths. As the granulations of trachoma also contain a certain percentage of this substance the effect thereon of radium becomes intelligible. The author picked out seven

trachomatous cases of a most pronounced character ; the amount of radium used was at first 1 mg., and later 10 mg.; time of exposure five to ten minutes. The tube containing the radium was simply applied over the area treated and slowly moved about without touching the surface. The results were really astonishing : five of the seven eyes were entirely cured, the other two are in a fair way of becoming so. The absorption of the granules was not accompanied by any untoward effect. The number of sittings varied from eight to fourteen. The author firmly believes that even in cases where the granules are extensive, good results can be obtained with radium, and that the treatment when properly conducted is perfectly harmless.

(3) Of three patients suffering from trachoma treated with radium, **Beck** obtained cure in two and relief in one.

(4) Four cases of trachoma treated by the *x*-rays without improvement that could reasonably be assigned to that agency Seven cases of trachoma treated with high-frequency currents did not improve at all. Two patients treated with radium showed no change for the better, although in one instance 37 applications were made and in the other 139 applications.

(5) **Stargardt**, induced by Heinecke's results in the use of the *x*-rays in the treatment of leukæmia, investigated the effect of *x*-rays upon the pathological lymph follicles of trachoma. After some experiments upon animals and blind eyes, he came to the conclusion that an exposure of 12 minutes' duration, using a soft tube at 5cm. from the eye, had no ill effects upon the conjunctiva. This was therefore the exposure he used, employing elaborate precautions to protect the face and globe from the rays. Upon the globe, beneath the doubly-ectropioned lid, a lead spoon of adequate size and curvature was laid, and the rest of the face covered by several layers of lead-stanniol paper and a piece of sheet lead 3mm. thick.

For the purpose of these investigations, Stargardt selected three cases in which the granulations were relatively early, and in which no scar tissue could be seen. The right upper conjunctival fornix only was exposed, and the fornix of all six eyes was excised in one case 16 hours after the exposure, in the other case 30 hours, and in the third case after 14 days. In the case observed for 14 days, after the third day a diminution in the size of the individual follicles could be seen, which ultimately (14 days) shrunk to about one-third their original size.

These fornices were then subjected to microscopic examination. No changes could be seen except in the lymph follicles, but there the change was a remarkable one. It was most marked in

the bit excised after 16 hours, much less marked in the second case (30 hours), and entirely absent, except for change in size, from the last one (14 days).

These changes consisted essentially in a distribution throughout the whole follicle of an extraordinary number of particles of all sizes and shapes, most of them staining deeply with nuclear stains. These particles lie, for the most part, between the cells and also in the phagocytes, whose numbers are also much increased. These particles are regarded by the author as the remains of dead nuclei. There is also, in addition, an increase in the number of giant cells, the character of which, however, is not altered. Remarkable is the decrease in the number of mitoses seen; compared with the untreated side the proportion is about 1 : 8.

From the above observations the author comes to the conclusion that the α -rays have an intense action upon the trachoma follicle, but that it is more or less transitory, lasting 24 to 30 hours. In view of the shrinkage seen in the case which had been observed for 14 days, however, the author is of the opinion that some of the change may possibly be permanent. On the whole, while the Röntgen rays may have a limited application in these cases, the ordinary therapeutical and operative measures are more certain.

A. LEVY.

VIII.—RADIUM AND EPITHELIOMA.

- (1) Darier, R.—The treatment of superficial epithelioma by radium. (*Traitemenit de l'épithélioma superficiel par le radium.*) *La Clinique ophtalmologique*, 25 juillet, 1905.
- (2) Kirchner, Hans.—On the superiority, from the æsthetic point of view, of the treatment of cancer of the eyelids by radium, and on the technique of this method. (*Sur la supériorité, au point de vue esthétique, du traitement du cancer des paupières par le radium et technique de cette méthode.*) *La Clinique ophtalmologique*, 10 et 25 août, 1905.

(1) Darier gives details of the case of a woman, *âgée* 52 years, who since 1897 had been under treatment (first, by tincture of iodine and, then, by excision) for a tumour of the ala nasæ. After the surgical interference, the growth invaded the inner canthus and extended along the lower border of the orbit. The

case was seen by Darier in 1904. "Superficial epithelioma of spreading serpiginous type, with a raised border and small peripheral characteristic nodosities, without surface ulceration but with crusty cicatrices." At this time treatment consisted in touching the spreading nodes with the galvano-cautery, followed by chromic acid and powdered methylene blue. After four or five months the surface had almost cicatrised, and the patient returned home. In May, 1905, she returned with a malignant extension of the disease, for which operation was refused. Darier, without much hope of success, for the extension had been rapid and towards the lacrymal sac, applied to each of these lobes of which the extension consisted, 5 milligrammes of sulphate of radium at 500,000 U. (fixed by an enamel varnish on a copper plate of 25 m.m. square) for 30 minutes. Another similar application three days later. Eight or ten days later the tumour had melted away, leaving a very red surface, slightly eroded in two places. The applications were then continued, at eight day intervals, to other spreading parts of the original growth, and to the cicatrices about the angle of the nose and cheek. At the end of two months (?) the date of the author's writing is not given) the case was cured, with the exception of two suspicious points which remained under treatment. "What has particularly struck me," says Darier, "is the rapid melting of the tumour in eight or ten days, and its complete disappearance without any cicatrical tissue, and with the loss of a portion of the tarsal cartilage only and of a few cilia. It seems as if the destructive action of radium, of which we have heard so much, bears almost exclusively on the epitheliomatous cells, while the healthy tissues, stimulated in their development, rapidly repair the loss of substance produced by the morbid process." Darier, after reference to previous cases treated by himself and others with bromide of radium of low intensity, explains that M. Curié, in order to overcome the loss of power which results from the inclusion of radium in a glass tube, has invented the method used in the case here related. It consists in suspending insoluble radium sulphate in a varnish, which, when applied upon metal and heated to 500°, acquires an enamel-like solidity. The resulting instrument (after 30 days' recuperation from the elevation of temperature) contains 5 milligrammes of radium sulphate at 500,000 U., and is capable, after 15 minutes' application, of producing a red *plaque* upon the skin which takes a month to disappear. Six minutes' application is sufficient for a child.

ERNEST THOMSON.

(2) Following hard upon the interesting article by Darier, is a paper by Kirchner. In this there is the same enthusiasm for the method, and especially for the good æsthetic results to

be obtained. Every two or three days a new surface of 3 m.m. is exposed for 15 to 20 minutes to the action of 1 milligramme of radium bromide enclosed in a minute block of lead with a mica window in it. Details of two cases are given. The article extends to nine columns of *La Clinique Ophtalmologique*.

ERNEST THOMSON.

IX.—TREATMENT.

(*First Notice.*)

- (1) Silfvast, S.—The therapeutic effect of jequiritol. *Finska Lakaresällskapets Handlingar* (*The Finnish Medical Report*), 1904.
- (2) The best manner of preparing and preserving solutions of Protargol. *Clinical Excerpts*, August, 1904.
- (3) Chevalier.—A note on the employment of anæsthesine in ophthalmology. (*Note sur l'emploi de l'anesthésine en ophtalmologie.*) *L'ophtalmologie provinciale*, décembre, 1904.
- (3A) Zur Nedden.—Clinical observations upon the effect of the pneumococcic serum (Roemer) on *ulcus serpens*. (*Klinische Erfahrungen ueber die Wirkung des Roemerschen Pneumokokkenserums beim ulcus serpens*). *Klin. Monatsblatt. für Augenheilkunde*, 1904, p. II. 552.
- (4) Bouchart.—Accidents attributable to adrenaline. (*Accidents attribuables à l'adrénaline.*) *Recueil d'ophtalmologie*, janvier, 1905.
- (5) Senn, A.—A warning against the unrestricted use of adrenaline in glaucoma. (*Warnung vor dem uneingeschränkten Gebrauche von Adrenalin bei Glaukom.*) *Woch. f. Therapie u. Hygiene des Auges*, Januar, 1905.
- (6) Darier, A.—The new painless silver salts. Their superiority over the too caustic silver nitrate. (*Nouveaux sels d'argent indolores, leur supériorité sur le trop caustique nitrate d'argent.*) *La Clinique ophtalmologique*, janvier, 1905.

- (7) **Fernandez, Santos (Havana).**—New indication for arecoline; its contraindication in glaucoma. (*Nouvelle indication de l'arecoline; sa contre-indication dans le glaucome.*) *Recueil d'ophtalmologie*, mars, 1905.
- (8) **Lloyd-Owen, D. C.**—The Richard Middlemore Post-Graduate Lecture, 1904. *Birmingham Medical Review*, March, 1905.
- (9) **Valude.**—Note on the action of antipyrine in optic atrophy. (*Note à propos de l'action de l'antipyrine dans l'atrophie optique.*) *Ann. d'oculistique*, T. CXXXIII, p. 195, mars, 1905.
- (10) **Coakley, C. G.**—Report on the use of stovaine. *Medical News*, April 15th, 1905.
- (11) **Fernandez, J. S.**—Stovaine. (*La estovaina en nuestra práctica oftalmológica.*) *Anales de oftalmología*, Mayo, 1905.
- (12) **Burnet, James.**—The therapeutics of aspirin and mesotan. *Lancet*, May 6th, 1905.
- (13) **Scrini.**—Stovaine. (*La stovaine.*) *Archives d'ophtalmologie*, juin, 1905.
- (14) **Oliveres, A.**—Some cases of hypopyon ulcer treated by serum therapy. (*Quelques cas d'ulcère à hypopion traités par la séro-thérapie.*) *La Clinique ophtalmologique*, 25 juin, 1905.
- (15) **Köhler, B.**—Effect of some new disinfectants, especially oxycyanide of mercury, upon infected instruments. (*Einwirkung neuerer Desinfizientien, besonders des Hydrargyrum oxycyanatum, auf infizierte Instrumente.*) *Zeitschrift für Augenheilkunde*, Juni, 1905.
- (16) **Sinclair, D. A.**—Gangrene of the skin following the use of stovaine, a new local anæsthetic. *Journal of Cutaneous Diseases*, July, 1905.
- (16A) **De Beck, David.**—Accident with adrenalin. *Annals of Ophthalmology*, July, 1905.
- (16B) **Connor, Leartus.**—Dionin (ethyl-morphin hydrochlorate) in ocular therapeutics. *Ophthalmology*, July, 1905.

- (17) Sicherer, v.—**Alypin : a new anæsthetic.** (*Alypin : ein neues Anästhetikum.*) *Die Ophthal. Klinik*, August 20, 1905.
- (18) Luke, Thomas D.—**Stovaine : a synthetic analgesic.** *The Antiseptic* (Madras), September, 1905.
- (19) Jacobsohn, Leo.—**Alypin : a new substitute for Cocaine.** (*Alypin : ein neuer Kokain-Ersatz.*) *Woch. f. Ther. u. Hygiene des Auges*, September 28, 1905.
- (20) Seeligsohn, W.—**On alypin : a new local anæsthetic.** (*Ueber Alypin : ein neues lokales Anästheticum.*) *Deutsche med. Wochenschrift*, No. 35, 1905.
- (21) Lawson, Arnold.—**The treatment of corneal ulcers by quinine.** *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 50.

(1) **Silfvast** resumes his experience of jequiritol in the following manner. The opacities of the cornea by keratitis parenchymatosa show, even by a very long lasting treatment, no disposition to clear up. Granulations, the diffuse infiltration by trachoma, and the fresh phlyctenular keratitis, are not influenced by the remedy. A succulent, fresh pannus may be cleared up for a time, but will soon recover its old aspect. On the other hand, it seems to the author that jequiritol has a favourable effect on leucoma cornea, on the opacities after a strumous keratitis, and on pannus in the cicatricial stage of trachoma. The treatment was disturbed by the following complications:—corneal infiltrations (four times), ulceration of cornea (once), phlegmonous dacryocystitis (once), and vesicular eczema of the lids (once).

J. WIDMARK.

(2) The favourite method of dissolving protargol is to dust it on the surface of the required amount of water, which is then allowed to stand without stirring. The pellicle of powder will be found to dissolve in a short time. Stock solutions should be avoided. One important point is that the water used should be cold, and heat should not be applied in making the solution, owing to the possibility of decomposition. It has been shown that if the foregoing directions are followed, the strengths of protargol in common use are practically free from irritation.

(3) **Chevalier** has investigated the value in ophthalmic practice of "anæsthesine." This is an ethylic ether of β . amido-benzoic acid, and occurs as an odourless, tasteless, white powder of feeble toxicity, soluble slightly in water but more freely in oils and solid fats. It can be applied to the eye (1) by insufflation, either pure or mixed with equal parts of milk sugar; (2) in oily solutions, 1 grm. in 15 grm. or in 30 grm. of olive oil; (3) in ointment, 1 grm. in 10 grms., or in 40 grms. of a mixture

of equal parts of vasaline and lanoline. Its action, which comes on in 10 to 12 minutes, and lasts for about half-an-hour, is similar to that of cocaine and orthoform. Chevalier has found instillations of the 1 in 15 oily solution useful for the relief of pain in keratitis, iritis, and sclero-choroiditis. R. J. COULTER.

(3A) Of fourteen cases treated by **Zur Nedden** with serum, two only were improved by the injection. In twelve cases the progress of the ulceration necessitated recourse to cauterization or keratotomy.

A. BIRCH-HIRSCHFELD.

(4) **Bouchart** performed a tenotomy for squint on a girl, *ætat* 20 years, employing a mixture of cocaine and adrenaline, known as "avasine," as the local anaesthetic. On the eighth day after the operation the patient developed an opacity of the cornea, similar to a post-operative striped keratitis, the pupil became dilated, the aqueous bluish in colour, and vision reduced. Notwithstanding treatment by eserine, hot fomentations, and smoked glasses, the symptoms increased, so that an epithelial bulla appeared over the opacity in the cornea, the dilatation of the pupil became maximal, like a case of aniridia or retroversion, the iris assumed a pale and atrophic appearance, and for about a week there was neuralgic pain extending from the seat of operation to the forehead. Vision became reduced to $\frac{1}{10}$ th under more regular treatment with dionine and eserin drops, the opacity and bulla of the cornea gradually disappeared, the iris regained a fair amount of its contractility, but remained somewhat pale, the aqueous humour also maintained its bluish colour, and vision did not improve beyond $\frac{1}{10}$ th. There were none of the prodromata or subjective symptoms of glaucoma, and tension remained normal throughout. It is interesting to note that no such untoward symptoms followed a second tenotomy performed three weeks later on the companion eye, when the ordinary clear adrenaline solution was used instead of the rose-coloured "avasine."

Bouchart ascribes the above startling symptoms to the vaso-constructor action of the adrenaline—possibly supplemented by a similar action of the cocaine—on the vessels of the uveal tract. The mydriatic action of adrenaline has been noted by several observers, and may be regarded as the converse of the myotic and vasodilatory action of eserine; others regard it as due to sympathetic stimulation, rather than a simple vasoconstriction. That the ciliary vessels were similarly influenced was shown by the change in the colour, and probably in the chemical composition, of the aqueous humour. The author considers—with Zimmermann—that in certain cases, where the nutrition of the eye is impaired, the use of adrenaline may be followed by destructive or necrotic changes. J. JAMESON EVANS.

(5) **Senn** reports two cases of glaucoma in patients, aged respectively 72 and 58 years, in which the use of adrenaline, 1:1,000, was followed by dilatation of the pupil, reduction of sight, and increased intraocular tension. In the first case the adrenaline was used with eserine; and in the second case alone. In explanation of these untoward accidents, Senn suggests that the adrenaline contracted the anterior ciliary veins and stimulated the dilator fibres of the iris. In this way the exit of fluid was lessened from the eye, and tension rose. In view of these cases Senn never uses adrenaline in glaucoma unless physostigmine has been first employed. S. S.

[For somewhat similar cases by MacCallan see THE OPHTHALMOSCOPE, Vol. II, 1904, p. 203.—EDITORS.]

(6) **Darier**, finding that, with some practitioners, nitrate of silver still holds the field, once more champions the cause of argyrol and other similar products. ERNEST THOMSON.

(7) Arecoline—the alkaloid of the areca nut—was first studied by Frochner, who recognised the similarity of its action, as a sialagogue and laxative, to that of pilocarpine and eserine. Further study by Graefe and Ehling, and especially by Lavagna, showed that it had definite effects on the eye.

When a 1% solution of bromide of arecoline is instilled into the conjunctival sac it causes a feeling of heat in the eye, lacrymation, and spasm of the orbicularis. The bulbar conjunctiva becomes injected for a few minutes. In about two minutes spasmodic clonic contraction of the iris occurs, and the pupil becomes visibly contracted, but soon dilates again, and regains its normal diameter in about 60 minutes. During the period of contraction the pupil reacts, although very feebly, to light. The spasm of the ciliary muscle attains its maximum stage one minute after the instillation of the drop. Tension of the globe is not diminished, although this is not universally held by clinicians who have used arecoline. Its action is more rapid, but less lasting, than that of eserine, and cases of glaucoma have been recorded in which the pupil did not contract under eserine, but reacted to arecoline. It is generally regarded as being efficacious in the treatment of glaucoma, but the experience of the author shows it to be anything but a safe remedy to use when it is desired that the visual function of the eye should be retained or restored. In one case of recurrent glaucoma with hypopyon, and two cases of corneoscleral ectasia, the instillation of arecoline drops was followed by a marked diminution in the size of the globe, which, however, did not progress when the arecoline was discontinued. In cases of ectasia, staphyloma, buphthalmos, etc., it may be very desirable to produce a diminution in the volume of the eye, but such a

result is very undesirable in a glaucomatous eye with a possibility of retaining some vision. The author is strongly of opinion that the use of arecoline should be avoided in the treatment of glaucoma.

J. JAMESON EVANS.

(8) The Richard Middlemore course of lectures was designed by the founder to encourage ophthalmologists to present annually a digest of knowledge likely to be useful to those members of the profession engaged in general practice. **Lloyd-Owen** in the present address deals with the subject of ocular therapeutics. He speaks in terms of praise of the new local anaesthetic, stovaine. Dionine he has found to be useful in keratitis, corneal ulcers, irido-cyclitis, and glaucoma, in combination with atropine, cocaine, or physostigmine, as the case may be. The uses of acoine, euphthalmine, and scopolamine are mentioned, and Lloyd-Owen advises against the employment of duboisine as a mydriatic, on account of its extremely toxic properties. With regard to adrenaline, he considers that it has a distinct and definite value in the treatment of eye diseases. Thus, it is valuable in conjunctivitis, phlyctenular keratitis, and in superficial corneal ulcers and wounds. Again, in episcleritis and iritis it assists the action of cocaine and atropine by its vasoconstrictor powers. Used in conjunction with physostigmine or pilocarpine, it reduces intraocular tension in cases of glaucoma. Lloyd-Owen believes that argyrol is the most trustworthy of all the organic compounds of silver. He uses it in the strength of 5 % to 25 %. The author speaks in favourable terms of subconjunctival injections. "Electricity," he writes, "is gradually assuming a more definite and trustworthy rôle in eye treatment." Recent experiments have shown that past failures were due to the use of galvanic currents of one and two milliamperes only. Now, by the employment of stronger currents, improvement has been obtained in cases which were once deemed hopeless—as, for example, tabetic atrophy, retro-bulbar atrophy, and secondary neuritic atrophy. Lloyd-Owen concludes that the field of electricity in eye diseases is again open to investigators.

(9) In 1893 **Valude** published in the *Annales d'oculistique* some observations showing the favourable action of injections of antipyrine in certain cases of optic atrophy, and since then he has continued to use the method. He now states that further experience has shown him that this treatment is indicated only in descending atrophy consecutive to an infectious encephalic process, and quotes as an example of its value the case of a girl suffering from definite optic atrophy of over 12 months' duration, following an attack of typhoid fever with cerebral symptoms, whose vision under it improved in 9½ months from R. hand motion, L. ½ to R. ¼, L. I. The treatment is carried out as

follows:—25 injections of 2 cubic centimetres of a solution, containing cocaine, 0·25 grm. antipyrine, 25 grm., distilled water, 50 grm., are given on alternate days subcutaneously in the dorso-lumbar region. If at the end of such a course there is no improvement, the treatment is abandoned as useless, but if the vision is better, further courses are given at intervals.

R. J. COULTER.

(10) **Coakley** has found that stovaine is much more stable than cocaine, inasmuch as an aqueous solution of the first-named can be boiled for an hour without undergoing the least change, and can then be recovered intact by evaporation. Its powers of local anaesthesia are equal to those of cocaine. Coakley has seen no toxic effects after the use of stovaine.

(11) **Fernandez** concludes that stovaine is preferable to cocaine for use in subcutaneous and subconjunctival injections, since it has no such toxic after-effects as have been found when cocaine has been used. As an instillation it is not so good as cocaine; it produces vaso-dilatation, and the resulting haemorrhage is more profuse than after cocaine. This vascular effect is, however, a safeguard against the syncopal attacks which occasionally follow cocaine. The low price of stovaine is also an advantage.

HAROLD GRIMSDALE.

(12) **Burnet** has a paper dealing with the action of aspirin on rheumatism and rheumatic affections generally, to say nothing of such conditions as chorea, glycosuria, and painful uterine, rectal, and mammary cancer. He has employed the remedy in certain "rheumatic" affections of the eye, as iritis and conjunctivitis. He mentions the favourable experiences of Frank (*American Journal of Ophthalmology*, June, 1904), and of Neustatter (*Münch. Med. Woch.*, 1903, No. 42) in this connection. The greatest advantages offered by aspirin appear to be its rapidity of action, its freedom from nausea, gastric disturbances, and tinnitus, and its non-depressing effect upon the heart. In Burnet's opinion, it replaces entirely all the other salicyl compounds, such as salicin, salicylic acid, and salol. As regards mesotan (the methoxy-methylester of salicylic acid), it is very readily absorbed by the skin, and can be detected in the urine an hour or so after its application. It produces a rapid effect upon the underlying tissues. Before use it should be diluted with an equal quantity of olive oil, and about a tea-spoonful of the mixture should then be painted over the affected part or be gently rubbed over the surface of the skin, first carefully freed from moisture.

(13) **Scrini** considers that the synthetic product, stovaine, discovered by Fourneau, is the only local anaesthetic worthy to rank with cocaine. Its feeble toxicity, together with its vaso-dilator

action, its tonic effects upon the heart, and its antiseptic properties, all tell in its favour and more than justify its use. The hydrochloride, dissolved in water, physiological salt solution, or boric lotion, is the particular salt employed. A 4% watery solution dropped into the eye, produces at first smarting, blepharospasm, and more or less injection of the oculo-palpebral conjunctiva, followed in two or three minutes by local anaesthesia, which lasts eight to ten minutes, and then slowly passes away. Other effects of stovaine are slight retraction of the eyelids and dilatation of the pupil, the reaction of which to light is not lost. Exfoliation of the corneal epithelium has been observed only when stovaine was used repeatedly. For injection beneath the conjunctiva or the skin a 1% solution is employed, and the vaso-dilatation produced is regarded by Scrini as an advantage. Apart from its action as a local anaesthetic, the author claims other advantages for stovaine—as, for example, to render painless the subconjunctival injection of saline solutions, and to relieve the subjective symptoms of blepharitis, conjunctivitis, iritis, and episcleritis.

S. S.

(14) After referring to the varying results obtained by other writers, Oliveres relates three cases in which he gave Roemer's anti-pneumococcic serum a fair chance. In each case the treatment failed, and recourse was had to the cautery and subconjunctival injections of cyanide of mercury. ERNEST THOMSON.

(15) Köhler, after a series of experiments, arrives at the conclusion that the antiseptic power of a solution of oxycyanide of mercury is not equal to the antiseptic power of a similar solution of sublimate. On the other hand, it does not alter metal instruments, which may be permanently kept in such a solution without harm, and is very much less irritating to the skin and mucous membranes. Certain further experiments with acrolein and formalin show the extraordinary power of killing germs possessed by these two substances, more especially the former; but they both attack metal instruments, and are irritating to the skin and mucous membranes.

A. LEVY.

(16) After reporting five cases in which the use of 2% stovaine was followed by lack of anaesthesia (1), syncope (2), and local gangrene (4), Sinclair concludes:—1. That stovaine has not the lasting anaesthetic properties possessed by cocaine; 2, that it does produce intoxication when injected subcutaneously; 3, that it is not by any means as safe as cocaine, but, on the contrary, that it is most dangerous and unreliable, producing chronic oedema and gangrene of the parts into which it is injected when used in the strength of a 2% solution; and 4, that it interferes with the healing process, extending the time many weeks longer than what is considered an ordinary period.

(16A) **DeBeck** applied 1'1000 adrenalin generously to the eye of a man of 37 years, suffering from posterior synechia as the result of specific iritis. About half-an-hour later the eye became painful, sight dim, and bleeding occurred into the anterior chamber. The effusion disappeared in three or four days.

(16B) Based upon personal observation and the findings of others, **Connor** offers the following conclusions as to the value of this drug in the treatment of eye diseases: (1) Dionin is an analgesic, not a local anaesthetic, so is useless for the removal of foreign bodies or other eye operations. (2) It promotes the cleansing and repair of damages adjacent to the lymph channels of the deeper tissues of the eyeball. (3) While it has powers not possessed by other known substances, its exact place in ocular therapeutics has yet to be determined. (4) Under some conditions in some cases it has relieved "deep-seated pain," "cleared opacities in the transmitting media," "shortened the course of acute inflammations of the uveal tract," and "promoted a restoration of normal structures and functions." (5) Until its status be more firmly established it is wise to use it in connection with accepted modes of treatment, or after these have failed. (6) It increases the effects of mydriatics, myotics, and local anaesthetics, proving helpful in diverse pathological conditions. (7) Its limitations are: (a) The short period during which it operates—about three days—when it needs a rest of equal length. (b) In some individuals its reaction is slight and specific benefits are small. (c) In some cases its reaction is startling and results are correspondingly good. (8) To date no damage has been reported from its use.

C. A. O.

(17) Alypin is a white crystalline powder, extremely soluble in water. Its melting point is 169°. Its solution yields a neutral reaction. Its powers of penetration are of a pronounced nature. Its local anaesthetic action is in no way impaired by boiling for five to ten minutes, although a longer exposure to such a temperature is not to be recommended. Alypin is considerably less toxic than cocaine. It acts as a vaso-dilatator. **v. Sicherer**, after recounting the experiences of Dr. Impeus (*Deutsch. med. Woch.*, Nr. 29) with the medicament, gives his own results and conclusions reached with a 1% to 2% solution, which appears to act as a local anaesthetic, pure and simple, when applied to the eye. The advantages alypin possesses over cocaine are summarised by **v. Sicherer** as follows:—1. It is much less poisonous; 2. It produces no mydriasis and no paralysis of accommodation; 3. It has no deleterious influence upon the cornea; and 4. Its price is substantially less.

S. S.

(18) **Luke**, lecturer on anaesthetics in the University of Edinburgh, has a paper on stovaine, the new synthetic analgesic. After describing the chemical affinities and physical qualities of stovaine, the author passes on to consider the physiological action of the new product, especially as tested on guinea-pigs. The lethal dose, the symptoms, the appearances after death, and other cognate points are considered. Briefly, the chief advantages of stovaine are its low degree of toxicity, its vaso-dilator action, its ready sterilisation by heat not exceeding $120^{\circ}\text{C}.$, its relative cheapness, and, last but not least, the fact that its analgesic power is practically equal to that possessed by cocaine. Its sole drawback is that it cannot be employed as an injection with adrenaline, since the combination produces gangrene at the point of injection.

(19) **Jacobsohn**, of Berlin, has employed the new Bayer product, alypin, for three months in numerous instances where local anaesthesia was necessary as a preliminary to the performance of small operations upon the eye. He has employed a 2% and a 5% solution. Anaesthesia came on about two minutes after the solution had been dropped into the conjunctival sac, and lasted for about ten minutes. Alypin causes no mydriasis. It exerts no action upon accommodation or intra-ocular pressure. It is therefore very suitable for glaucoma operations. It does not widen the palpebral fissure. It is apt to cause a transient redness of the conjunctiva. The new agent sets up no smarting when dropped into the eye, neither does it produce any dryness, such as is often present after cocaine has been used. Jacobsohn concludes that alypin is a valuable substitute for cocaine, since it is much less poisonous, and is cheaper than the last-named agent. S. S.

(20) Since March, 1905, **Seeligsohn**, of Berlin, has employed a boiled 4% aqueous solution of alypin for many operations on the eye, including discussion and cataract extraction. He regards alypin as a most practical local anaesthetic, especially in glaucoma operations. Anaesthesia, which is produced in 1 to 2 minutes, lasts 8 to 15 minutes. Even inflamed eyes may be rendered anaesthetic by repeated instillations of alypin. S. S.

(21) **A. Lawson** treats certain kinds of corneal ulceration with a lotion containing 4 grains of quinine sulphate to the ounce of distilled water, just enough sulphuric acid being added to ensure a clear solution. The affected eye is "soaked" in the lukewarm lotion for five minutes, four times daily or every four hours. If improvement be not manifest in one week some other remedy should be tried. The quinine treatment, in Lawson's opinion, tends to the production of a translucent cicatrix.

X.—MISCELLANEOUS.

Yvert, A.—A contribution to the study of multiple and complex paralyses of the muscles of the globe of the eye (*Contribution à l'étude des paralysies multiples et complexes des muscles du globe de l'œil.*) *Recueil d'ophthalmologie*, XXV (1903), p. 373.

Schaefer, Rom. Joh.—The position of the poet Jung-Stilling in the eye work of his time. (*Die Stellung des Dichters Jung-Stilling in der Augenheilkunde seiner Zeit.*) *Die Ophthal. Klinik*, 10 and 20 April, 1904.

Wicherkiewicz.—On the question of the treatment without bandaging after operation for cataract. (*Zur Frage der offene Wundbehandlung nach Staroperationen.*) *Klin. Monatsbl. f. Augenheilkunde*, 1904, Bd. II, p. 222.

Wicherkiewicz covers the eye after operation for cataract only with a sheet of paper fastened by gum arabic.

A. BIRCH-HIRSCHFELD.

Tweedy, John.—The relation of ophthalmology to general medicine and surgery and to public health. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 1.

Roll, G. W.—*Ophthalmoplegia externa.* *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 239.

Roll's patient, a lad aged 16 years, suddenly, without known cause, developed diplopia and ptosis and incomplete ophthalmoplegia externa. In some respects the case resembled one of myasthenia gravis.

Gradle, H.—Asthenopia dependent on Neurasthenia and Hysteria. *Archives of Ophthalmology*, July, 1903.

Coover, David H.—Papilloma of the Cornea. *Ophthalmic Record*, October, 1903.

Suter, W. N.—The correct use of terms in ophthalmology. *Ophthalmic Record*, October, 1903.

Peters, A.—On the disturbances of vision by means of autosuggestion. (*Zur Frage der Sehstörungen durch Autosuggestion.*) *Zeitschrift für Augenheilkunde*, Juli, 1904.

Peters in this paper brings a few new cases to those which he described in an article on this subject in the *Zeitschrift* in 1899. The cases referred to are mostly school children who have comrades or relatives who wear glasses and who have a desire themselves also to wear glasses. The author usually finds that

the form of disturbance complained of is myopia. A few cases, however, where hypermetropia and presbyopia were imitated, have also occurred. These cases are often mistaken either for a spasm of the accommodation or paralysis, generally post-diphtheritic. They are unmasked by the improvement in vision produced by a plane glass. It is necessary to bear these cases in mind, and to test for them where inconsistent answers are given. How far these cases are to be considered hysterical must remain doubtful. They are, however, to be noted, as they may be of considerable diagnostic value later.

A. LEVY.

Evans, J. Jameson.—Injuries to the eyes in relation to the Workmen's Compensation Act. *British Medical Journal*, February 27th, 1904.

This interesting paper should be consulted in the original by those who have to do with the Workmen's Compensation Act. In this place we can only say that, in Jameson's opinion, "it is impossible to estimate the amount of loss of earning ability by means of mathematical formulæ."

Liebreich.—The influence of school on the eyes and spine of children. (*Einfluss der Schule auf Auge und Wirbelsäule der Kinder.*) *Klin. Monatsbl. f. Augenheilkunde*, 1904, Bd. II, p. 70.

Leibreich writes upon the three questions: (1) What is the effect of the close approach of the head to the book in writing or reading? (2) How is it caused? (3) How can it be prevented? The author gives an interesting view upon the details relative to these questions. The perusal of this paper is recommended both to doctors and to teachers.

A. BIRCH-HIRSCHFELD.

Jelly, G. Aubrey. Return of vision to an amblyopic eye. *British Medical Journal*, 24th December, 1904.

Jelly reports one of those cases where the removal of a "fixing" eye led to improvement in the sight of a squinting eye. The vision of the latter in the course of eleven months improved from 6/36 and No. 14 Jaeger to 6/6ptly. and No. 1 Jaeger.

Lawson, Arnold.—Diseases of the Eye. *Polyclinic*, March, 1904.

The conditions demonstrated by Lawson at the Medical Graduates' College included (a) incomplete traumatic cataract in a child, (b) atropine dermatitis, (c) wound of eyelid, (d)

exophthalmic goitre in a female child, aged 12 years, (*e*) total posterior synechia with shrinking globe, and (*f*) paralysis of the external rectus muscle, following measles.

Sattler, Robert.—*Angelucci's modification of the technique of the cataract operation—fixation of superior rectus and completion of entire operation without speculum or aid of assistant.* *Trans. American Ophthal. Society,* Vol. X, Pt. II. (1904), p. 342.

Angelucci's method of operating is as follows:—the conjunctiva and the tendon of the superior rectus muscle beneath it are seized with broad fixation forceps, and by raising the closed forceps the upper lid is at the same time elevated, thereby exposing the field of operation fully, without the use of a speculum. The cataract extraction is then performed in the usual way, with or without iridectomy. Sattler has adopted the method in fourteen cases, and in the present communication details its advantages. He believes that it furnishes an important advance as regards the technique of cataract operation. Thus, fixation of the globe and opening of the palpebral fissure are not, as in the old way, two steps but are reduced to a single one. Again, the dangers of the speculum are avoided; fixation is firm; exposure is free; and, lastly, under the circumstances named, the section of the cornea can be made with greater accuracy. Indeed, the method is recommended by Sattler not only as a part of cataract extraction but also for several other purposes, amongst which he enumerates inspection in photophobia, the removal of epithelioma of the ocular conjunctiva, iridectomy upwards for optical purposes, the discussion of secondary cataracts, the removal of foreign bodies from the cornea, and other minor surgical measures.

Pes, Orlando.—*Acute bilateral inflammation of the lacrymal gland in gonorrhreal urethritis.* (Die acute bilaterale Entzündung der Thränendrüsen bei Blennorrhagie der Urethra.) *Archiv für Augenheilkunde,* Bd. LI, 1904, p. 144.

Pes writes a very detailed paper based on four cases of dacryoadenitis occurring in patients with gonorrhea. He commences with the anatomy of the gland and its parts, passes on to consider the various ways in which it may become inflamed, then turns his attention to gonorrhea and the various complications which may arise in its course and the various ways in which these complications may be caused. He concludes that there are three groups of cases:—

1. Where the actual gonococcus is transferred by the blood or lymph stream from its primary seat of infection to other parts of the organism.

2. The toxins produced by gonococci at one place may themselves produce inflammations in other parts apart from the organisms.

3. That gonococci can produce inflammation by rendering the tissues more liable to attack by other organisms (mixed infections), or by providing a means of entry for other organisms.

The four cases of dacryoadenitis, which he describes, he puts into the second of these classes (toxin-caused inflammations), since in all four, although numerous gonococci were found in the urethral secretion, none were demonstrated in the eye. When an author has taken the trouble to write an article of such length as the present, we should have thought it worth his while to insert a fourth, somewhat important, class of complications, namely, those due to direct transference of the gonococci.

LESLIE PATON.

Coulomb, R.—A new method of taking a cast of the orbital cavity. (*Nouveau procédé de moulage de la cavité orbitaire.*) *Annales d'oculistique*, T. CXXXII, p. 55, juillet, 1904.

Coulomb has devised an instrument to overcome the difficulty experienced in taking satisfactory casts of the orbital cavity after complete or partial removal of the eyeball owing to the tendency of the eyelids to open during the process. This consists practically in a clamp similar to that of Desmarres but capable of fixing both lids at the same time, and having a hole in the centre of the plate. To take a cast, the lids are fixed in a clamp and paraffin, melting at 45° C., is injected from a syringe at a temperature of 55° C. through the hole in the plate until the orbital cavity is full. After allowing ten minutes for cooling, the cast can be removed and trimmed, and after having the position of the pupil marked on it, can be sent to the maker of artificial eyes as a model. Unfortunately the method is inapplicable to cases in which the socket is contracted by cicatrical bands ; that is, just when a cast would be most likely to be useful.

R. J. C.

Collins, Captain D. J.—School hygiene in relation to vision. *Journ. Royal Army Medical Corps*, February, 1905.

Hathaway, Frank J.—Fracture of the anterior fossa of skull dividing the optic nerve. *Lancet*, 21st January, 1905.

Morax.—A note on concretions of the lacrymal canaliculi. (*Note sur les concrétiōns des canalicules lacrymaux.*) *Annales d'oculistique*, T. cxxxiii., p. 188, Mars, 1905.

Morax gives histories of two cases of lacrymal concretions. In one of them he made a bacteriological examination, and found the concretion to consist of a filamentary bacillus, which grew on aerobic and anaerobic media, and stained with various aniline colours and by Gram's method. It developed well in bouillon, forming spherules resembling lacrymal concretions, did not grow on potatoes, was non-pathogenic for animals, and seemed to be particularly suited for a partial anaerobiosis, such as obtains in the lacrymal canal.

In 1873 Cohn described, under the name of *streptothrix Fosterii*, an organism isolated from a lacrymal concretion, and Morax does not see any reason the bacillus which gives rise to this very rare condition should not continue to be known by this designation.

R. J. COULTER.

Wolffberg.—An improved eye bandage for out-patients. (*Verbesserte Augenschutzbinde für ambulante Behandlung.*) *Woch. f. Ther. u. Hygiene des Auges*, 11 mai, 1905.

REVIEWS.

Paralysis and other diseases of the Nervous System in Childhood and Early Life. By JAMES TAYLOR, M.A., M.D., F.R.C.P. London: J. and A. Churchill, 1905. pp. 512. Price 12s. 6d.

Dr. James Taylor's book on "Nervous Diseases in Childhood and Early Life" (to give the volume its alternative title) contains several sections of particular interest to eye surgeons. For example, chapters are devoted to amaurotic family idiocy, hemicrania with third nerve paralysis, congenital defects in ocular movements (so-called "congenital ophthalmoplegia"), Leber's optic atrophy, obstetrical paralysis, juvenile tabes dorsalis, myasthenia, and functional paralysis. These several chapters should be read by ophthalmic surgeons, if only for the purpose of familiarising themselves with the point of view of a general physician. Some of the other chapters, in particular that dealing with the various forms of meningitis, are also of interest to the eye-specialist. With regard to the ocular symptoms of posterior basic meningitis, we note that Dr. Taylor states that marked retraction of the cyclids often occurs, a symptom

that we thought to be somewhat uncommon. To explain the transient blindness, without ophthalmoscopic signs, now and then observed in that disease, he suggests a "temporary inhibition of the function of the lower visual centres by toxic products of the meningitic process," but he does not mention the mechanical theory of some other writers. It is, of course, quite within the bounds of possibility that Dr. Taylor's surmise is correct.

The prevailing note of the book is one of extreme caution, although often enough ascertained facts would lose nothing in the telling if a more direct style of statement were adopted. In one place, at all events, the customary and rather characteristic note of caution might have been inserted with advantage. This is on page 349, in the section upon congenital defects in ocular movements, where Dr. Taylor states in so many words that in these defects "no evidence of an affection of the internal ocular muscles has ever been present." ~~This is at least one case on record*~~ where there existed, as a congenital defect, paralysis of practically all the muscles, internal and external, supplied by the third cranial nerve on one side. ~~This book is refreshingly free from printers' blunders.~~ In fact, the only ~~one~~ we have ourselves noticed occurs on page 352, where "Higgins" is printed for "Higgens." The writing has few pretensions to literary style; but although perhaps apt to be a little wordy, Dr. Taylor has the useful knack of conveying to his readers exactly what he means. The index, we think, scarcely does credit to so excellent a book, on the production of which we congratulate the author. This is emphatically a volume that should be found upon the study table of every progressive ophthalmologist.

Manifestations Oculo-Orbitaires des Sinusites Sphénoidales.

Par le DR. ÉMILE MOREAU. Lyons : Imprimerie R. Schneider, 9, Quai de l'Hôpital. 1905.

Although numerous individual references to the association of nasal and ophthalmic lesions are found scattered in our literature, we have to look abroad for more complete surveys of the subject. Such a one is this Lyons thesis, which we have read with the greatest interest and instruction. It is limited to a consideration of the ophthalmic troubles associated with the sphenoidal sinus. Chapters are devoted to the anatomy and pathology of the sinus, and then to the functional and pathological changes which it may induce in the eyeball or orbit. A typical case is contributed by the author from the clinic of Professor Jaboulay, and a study is made of the whole question.

* *Reports of the Society for the Study of Disease in Children*, Vol. II (1902), p. 117.

As the author truly remarks, many a patient with eye trouble is sent to the rhinologist, and comes back with the report that the sinuses are healthy. We are inclined to think that this is due to the fact that many cases of sinusitis still escape detection. In clearing up the uncertainty of this borderland, we can warmly recommend this brochure to both the ophthalmic surgeon and the rhinologist.

ST. CLAIR THOMSON.

Leitfaden zum Augenspiegelkurs. Von DR. FRITZ SALZER, Privatdozent an der Universität München. München : Verlag von J. F. Lehmann. 1905. **A Primer on Ophthalmoscopy.** By Dr. Fritz Salzer.

Salzer has succeeded in presenting the principles of ophthalmoscopy in an admirably clear and concise manner by a happy combination of text and charts. His abstention from all mathematical formulæ in discussing optics will be appreciated by the majority of medical students. The author is especially to be congratulated upon the chapter on retinoscopy, in which the incidental phenomena are accounted for with the utmost lucidity. The student is enabled by means of this guide to carry out the examination of eyes in the dark room in a thorough and intelligent way. It is, perhaps, to be regretted that the author has gone beyond the limits of his purpose by including subjects which appear to be distinctly out of place in a primer on ophthalmoscopy, e.g., a miniature pathology of keratitis, and a short account of the operation for cataract. On the other hand, we note that no reference is made to the test for projection, and to the useful method of placing a strong convex lens behind the ophthalmoscopic mirror. The normal appearance of the disc, also an all-important subject in a primer, might have received a more detailed description. For example, the physiological difference in colour of the nasal and temporal half of the disc is not mentioned.

P. MARKUS.

Die Wirkungen von Arzneimitteln und Giften auf das Auge. Handbuch für die gesammte ärztliche Praxis. Von Dr. L. LEWIN, Professor in Berlin, und Dr. H. GUILLERY, Professor in Côle. In zwei Bände, mit 99 Textfiguren. Berlin : Hirschwald, 1905, pp. 857 und 1044. **The Action of Drugs and Poisons on the Eye:** A Manual for general medical practice, by Dr. L. LEWIN, Professor in Berlin, and Dr. H. GUILLERY, Professor in Cologne. 1905. Price 52 M.

A very large portion of the second volume is occupied with an account of the numerous bacilli and other micro-organisms that have been observed to be associated with, and are believed to be the cause of, various forms of conjunctivitis and keratitis. The evidence that some of these are rightly regarded as the true cause of disease rests on the facts that pure cultures

have been made, which, when introduced in minute quantity between or under the lids or into the aqueous, or vitreous humours, excite a special form of inflammation, which disappears when they are removed or destroyed, fulfilling the well-known condition of a true cause that *præsens morbum facit, sublata tollit!* The moist surface of the eye, its warmth, and the long closure and quiescence of the lids during sleep are all circumstances favourable to the adherence and multiplication of some forms of germs. On the other hand, there is reason to believe that most of those particles that are seen to float in the air are dead, that the temperature of the body is several degrees too high to permit of their development, and that of those that are living there is a resistance offered to their multiplication, either by some bactericidal action of the tears or blood, or by the superficial cells, or by phagocytosis, by which means immunity to their attacks is in the majority of cases obtained. The authors give a long list of bacteria, which, when introduced into the eye, excite inflammation, probably by the production of toxines, which are substances very liable to change in their chemical composition, and they believe are albumins or albuminoids enzyme-like in character.

The micrococci specially dwelt upon by the authors are streptococcus, staphylococcus, pneumococcus, and gonococcus ; some others are briefly mentioned.

As it is impossible within the limits of our space to enter into any details of the various micro-organisms described in these volumes, we propose to take one only and show the method that is followed by the authors in treating of it, and the one we select is the bacillus tuberculosis. After alluding to its wide distribution and the well-known infective character of tubercle, they point out that we are still ignorant of the exact nature of the poison, for the reasons that sometimes one, sometimes another organ is affected ; and that we do not know how it comes to be an inherited disease. Before we can speculate upon the nature of the poison, much more information than we at present possess is required of the varieties of the different forms of albumin. Those of animals and plants are surprisingly similar, not only in their chemical composition, but in the products of their disintegration. Thus, the Bovista or species of Puff-ball contains an abundance of uric acid. They hold that an enzyme is generated by the bacillus which acts primarily as a catalysing agent, the further progress of the disease being occasioned by a poison supplied by the cells that are first infected, which would account for the frequency with which the tubercle bacillus fails to be discovered. It is probable, they think, that the heredity of tubercle may be explained by the transmission of the enzyme either through the sperm or through the ovum, or by the actual

transference of the bacillus itself. The establishment of tuberculosis in animals by inoculation, and by the injection of the tubercle into the alimentary canal, is then discussed. The inoculation of tubercle has been effected through veins of the ear, the cavity and of the skull, the cornea, and the anterior chamber, even dead bacilli have been shown to be competent to generate the affection. Statistics are given which show that it occurs with great frequency in England : one case of tuberculosis occurring in 2,500 ophthalmic cases, whilst in Berlin there is only 1 to 6,000, and 1 in 20,000 at Constantinople. The topographical distribution of tuberculosis is then considered, commencing with the conjunctiva, different forms of types of which are recognised, as for example : nodes and ulcers ; trachoma-like masses : outgrowths, lupus, and various anomalous forms. A very large number of recent and well authenticated cases of each of these forms is appended, the authority being given in foot-notes, and in many instances there is a short history of the case. After the conjunctiva, subsections are devoted to tuberculosis of the lacrymal organs ; lids ; sclera ; cornea, embracing primary and secondary tuberculosis of that membrane ; keratitis parenchymatosa ; sclerosing keratitis ; and the experimental production of corneal tuberculosis ; the iris ; the choroid ; vitreous humour ; retina ; optic nerve and tuberculosis of the globe as a whole, and, finally, of the orbit. It will be seen that the reader will here find an epitome of all that has hitherto been published on this subject. We think it would improve these volumes if good microscopic drawings of the different forms of the micro-organisms had been inserted. The chief forms are, doubtless, familiar to experts, but all ophthalmic surgeons can hardly be expected to be experts in bacteriology.

We should like to add a word in commendation of the exceptionally complete indexes, both of names and of subjects with which the second volume is brought to a close. HENRY POWER.

(To be concluded.)

OBITUARY.

THE LATE DR. FRANK BULLER:

An Appreciation

BY

DR. J. GARDNER,
OF MONTREAL, CANADA.

The death in Montreal on the 11th October, 1905, of Dr. Frank Buller, removes a remarkable member of the Canadian Medical profession. Dr. Buller was the son of Charles G. Buller, and was born at Campbellford, Ontario, in 1844. He was educated

at Peterborough High School, and graduated in Medicine in 1869, at Victoria College, Coburg. He then proceeded to the continent of Europe, where he spent two years in study, paying particular attention to diseases of the eye and ear. He had the advantage of personal instruction from Professor von Helmholtz, and Von Graefe in Berlin. During the Franco-German war he served in some of the German Military Hospitals. In 1872 he left for London, remaining several years, two years being as House Surgeon at the Royal London Ophthalmic Hospital. Here he worked with Hutchinson, Critchett, Hulke, Lawson, and others. In 1876 he returned to Canada, and settled in Montreal, where he resided and practised his special work until his death.

He was appointed, in 1877, the first ophthalmic and aural surgeon to the Montreal General Hospital, a position he held with great credit to himself and to the Hospital until 1894, when he resigned to accept a similar position in the Royal Victoria Hospital. He was also the first Professor of Ophthalmology and Otology in McGill University, which he held until his death, a period of twenty-two years. Physically strong and robust, he was always ready for hard work, and seldom took a holiday. Although in the end his death occurred somewhat suddenly, it cannot be said to have come altogether as a surprise. He had been failing for a year or two and practically off work for six months. He died of pernicious anaemia.

Dr. Buller was not a voluminous writer. In his clinical writings are to be found his most valuable contributions. They extend over a period of over thirty years, and number about seventy-five articles. Some of the most important are as follows:—

I. A Protective Bandage for the Eye. *Lancet*, Vol. 1, page 690, 1874.

II. The use of Eserine in Ophthalmic Practice. *Mont. Genl. Hosp. Rep.*, Vol. 1, page 216, 1880.

III. Anomalies in the Functions of the Extrinsic Ocular Muscles. *Ophth. Rev.*, Vol. 16, page 363, 1897.

IV. Temporary Ligation of Canaliculi as a means of Preventing Wound Infection in Operations on Eyeball. *Trans. Am. Oph. Soc.*, Vol. 9, Part 1, page 633, 1902.

V. Poisoning by Wood Alcohol (with Dr. Casey A. Wood). *Jour. Am. Med. Assoc.*, Vol. 43, page 1289, and Vol. 23, page 1213, 1904.

CORRESPONDENCE.

While *The Ophthalmoscope* will at all times welcome correspondence from its readers, the Editors do not hold themselves responsible for any views expressed in this column.]

To the Editors of THE OPHTHALMOSCOPE.

SIRS,

May I draw attention to a case in which the application of a solution of alypin to the conjunctiva was followed by symptoms of poisoning?

The patient, a Swiss, about 28 years of age, sought relief from a piece of steel embedded in the cornea.

A solution of alypin, 2 per cent., was used as the anaesthetic. Two drops of this solution were instilled into the conjunctival sac; after about three minutes, the conjunctiva was washed out and 2 drops of alypin were again instilled. On having his cornea touched with the needle the patient shrank a little, and, being asked if he felt anything, replied that he felt a touch, but no pain. Another drop of alypin was instilled, and the operation was about to be proceeded with, when the patient suddenly had a convulsive attack, in which the head was thrown up, and large jerky movements were made with the arms and legs. The convulsion lasted for about two seconds, and was followed by unconsciousness lasting for a further three seconds.

On being questioned, the patient said that he felt extremely ill. He was placed recumbent on a couch, and given an ounce of brandy. In spite of this, he became cold and white, and his pulse, which at first had been rather hurried, became slow (little over 40) and very feeble.

The time which elapsed from the first instillation until the patient was deeply collapsed was, as nearly as could be guessed, 7 or 8 minutes.

Liquor strychninæ (m.v.) was given hypodermically, and the patient was wrapped in blankets and surrounded by hot-water bottles. His pulse now gradually improved, rising in rate to 64, and he regained his colour. He was quite calm, and allowed the foreign body to be removed.

On examining his heart, this was found to be acting feebly, but was otherwise normal.

He was kept quiet for an hour and a half, when he was feeling quite well and had a pulse of 72, of good volume.

The patient stated that he was not subject to fainting, and had "never felt like that in his life before."

These symptoms I attribute to the absorption of the drug from the conjunctiva in a patient peculiarly susceptible to its poisonous action.

If this be so, the remarkable points about the case are the minuteness of the dose, and the fact that the drug employed (alypin) is reputed to be less toxic than cocaine.

I am, Sirs,

Yours faithfully,

ROYAL EYE HOSPITAL,
SOUTHWARK, S.E.

ARTHUR D. GRIFFITH,
House-Surgeon.

Dec. 13th, 1905.

The Editors of THE OPHTHALMOSCOPE.

Dear Sirs,

We have perused with interest Mr. Sydney Stephenson's paper, "A note upon Alypin, a new local anaesthetic," in the October number of your esteemed periodical, and beg to draw your attention to a revised method of preparing sterilised solutions, as follows:—

Sterilise by boiling the requisite quantity of water, then add the necessary amount of Alypin, and keep boiling for about two minutes.

The product being put on the market in a nearly sterile condition, this time is quite sufficient. It should also be noted that fresh solutions are always preferable.

We are, dear Sirs,

Yours faithfully,

19, St. Dunstans Hill, E.C.

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Reviews

TWO CASES OF LID-CLOSURE PUPIL REFLEX

BY

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The following cases, illustrating an unusual pupil phenomenon, have come under my notice recently in the wards of Dr. J. W. Allan, in the Glasgow Royal Infirmary:—

CASE I.—The patient, a rather badly nourished girl of 17 years, was suffering from a moderately severe attack of chorea, affecting the muscles of the face and limbs of the right side, of three months' duration. Onset had been gradual, but there was a definite history of fright preceding the illness, and she had suffered from acute articular rheumatism a month or two before the onset of movements.

At the time of admission patient was in a highly irritable condition, the slightest excitement causing uncontrollable movements of the affected limbs, and, in addition, a rigidity combined with tremor in the limbs of both sides. While she was under observation there was occasional involvement of the orbicularis

muscle on both sides. Muscular power was good. Sensory functions normal. Mitral cardiac disease, indicated by presence of variable presystolic and systolic murmurs at the apex, and reduplication and accentuation of the second sound at the base.

Eye Condition: Palpebral fissures normal and equal; no abnormality of eye movements; no diplopia or squint; no conjunctival injection; pupils equal, 5.5 m.m. in diameter with distance gaze, by diffused daylight; light reaction, direct and consensual, present in both, but rather defective in degree; much better contraction with accommodation and convergence, both dissociated and combined; cilio-spinal reflex not clearly elicited; cornea normally sensitive. Discs well coloured; no abnormality of the fundi.

During the earliest stage of her residence the patient showed some intolerance of light, for example, when light was focussed upon the eye with the object of testing the light reflex, it caused a spasmodic closure of the lids. At these times it was noticed that on opening the eyes again the pupils were for an instant, smaller than they had been before the closure, and took an appreciable time to dilate to their former size, instead of, as under normal conditions, contracting shortly after exposure of the eyes to light. The lid spasm which occurred at such times was not an instantaneous blinking movement, but a more forcible closure, lasting probably for about a quarter of a second. An explanation of the phenomenon was sought by varying the conditions of the test. Shading and uncovering the open eyes, or opening them after passive closure of the lids for some time, showed no contraction. It was therefore not an inversion of the light reflex. The contraction of the pupil was clearly seen when closure was prevented in one or other eye or in both simultaneously, by holding the lids apart while the patient made efforts to close them. The possibility that the phenomenon was due to pressure on the eyeball was considered, but even when special care was taken to prevent contact of the lids with the eyeball, the phenomenon occurred as before. Contact of a foreign body with the cornea had no effect, nor could contraction of the pupil be produced by any form of pressure on the cornea or sclera. The pupil contraction could be elicited even with closure of the lids of very short duration, and if energetic closure was maintained for some time the pupils remained contracted till the effort was relaxed. This occurred whether the actual closure was allowed or prevented. On the other hand, if the eyes were kept shut by merely passive closure, no contraction was observed on reopening. In other words, the active innervation of the orbicularis was the factor which determined the pupil contraction.

The patient's general state improved steadily under treatment, but she suffered a relapse after a month's residence, owing to the presence of a delirious patient in the ward. This relapse showed a repetition of the features of the primary attack, but lasted only a few days. In spite of these changes in the patient's condition, the pupil phenomenon remained unaltered.

Taking all the facts of the case into consideration, it seemed most probable that one would be justified in calling the phenomenon an associated action of the sphincter iridis and orbicularis palpebrarum, analogous with the well-known cases of jaw-winking movements, and that, so far as it went, it tended to support the Mendelian theory of the innervation of the orbicularis from the third nerve nucleus. The persistence of the phenomenon, in spite of changes in the patient's condition, showed that it was independent of her disease, and probably a congenital abnormality.

A search for references to the phenomenon shows that it was first reported in Italy by Galassi (1) in 1887. Gifford (2) wrote on the subject in America in 1895. The phenomenon was "discovered" by Westphal, in Germany, in 1899 (3), and a few months later was independently described by Piltz (4), since when it has often been spoken of as the "Westphal-Piltz pupillary phenomenon." Other authors, who reported cases or discussed the subject, were Antal (5), Kirchner (6), Roth (8) and Franke (9). The phenomenon had been generally looked upon as an instance of "associated movement," and this view was not seriously called in question until the appearance of a paper by Schanz in 1901 (10), in which the view was upheld that the phenomenon was purely mechanical, and due to blood stasis in the eyeball, brought about by irregular pressure of the lids on the globe. It will be observed that the above case lends no support to this view, as special care was taken to exclude the possible influence of intraocular pressure. Neither Westphal nor Kirchner was able to excite pupillary contraction by application of pressure in any form, nor by sensory stimulation of the cornea. Moreover, when the phenomenon was present, the application of cocaine did not affect it in any way. The reflex is not essentially associated with convergence or accommodation, since it has been seen where one or other, or both of these were abolished.

With regard to the diagnostic significance of the reflex, there is no agreement, even among those who have looked for it in large numbers of cases. It has been recorded in cases of general paralysis, tabes, katatonias, hysteria, and in normal subjects. Many of the cases in which it has been observed in a marked degree showed, as in the above instance, some defect in the

pupillary reflexes, especially that to light, but this does not seem to be a necessary accompaniment. It is conceivable that the effect of the normal light reflex may be so marked as to overshadow or entirely to hide the lid-closure reflex, and Gifford, as the result of his investigations, declared that with proper precautions as to examining by faint light, he was able to observe the phenomenon in a great majority even of normal cases.

CASE II.—The sign is present in a well-marked degree in a young woman at present under observation, suffering from convulsive attacks, apparently of a functional nature, affecting the muscles supplied by the 9th, 10th, 11th, and 12th cranial nerves. In her case the pupils are equal, of medium size, react well to light, but show no contraction due to accommodation or convergence. She is highly myopic. This association of the reflex with hysteria has been observed before, notably by Westphal, who saw it in that disease with normal pupils and pupil reflexes.

In conclusion, it may be said that the theory of associated action, due to a common source of innervation of the sphincter iridis and orbicularis, seems to offer the most plausible explanation of the phenomenon, while, up to the present, no definite diagnostic value can be assigned to it.

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1. Galassi.—*Bulletino della Soc., Lancis., &c* Quoted by Mirgazzini. *Neurolog. Centralb.*, 1899, No. 11.
2. Gifford.—*Archives of Ophthalm.*, xxiv., 1895, No. 3.
3. Westphal.—*Neurolog. Centralb.*, xviii., 1899.
4. Piltz.—*Neurolog. Centralb.*, xviii., 1899.
5. Antal.—*Neurolog. Centralb.*, xix., 1900, No. 4.
6. Kirchner.—*Münchener med. Woch.*, 1900, Nos. 14 and 15.
7. Piltz.—*Neurolog. Central*, xix., 1900.
8. Roth.—Moscow, 1900. Ref. *Neurolog. Centralb.*, 1901, No. 14.
9. Franke.—*Verband des Ärzte. Vereins zu Hamburg*, 25 June, 1901.
10. Schanz.—*Berlin. Klin. Woch.*, xxxviii., 1901.
11. Westphal.—*Berlin. Klin. Woch.*, xxxviii., 1901.

AN UNUSUAL ASSOCIATION OF INTERSTITIAL KERATITIS—BLANCHING OF THE EYELASHES.

BY
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LONDON, ENGLAND.

Sarah P———, *at* 32 years. Unmarried.

Family History.—Father died at 58 years from asthma. Mother died at 43 years from enteric fever. The family consisted of five members, of whom three, including the patient, survive. One female died at 23 years from phthisis pulmonalis, and one baby boy, when three days old, from bleeding from the navel.

Personal History.—Patient, as a child, was troubled with watery eyes, and is so still. When she was about 14 years of age, the lower canaliculi were operated on at Guy's Hospital. Inflammation of the lungs at 15 years. Subject to a "winter cough." The bridge of the patient's nose has always been depressed, but at no time has any discharge been present from the nares, neither has any bone come away. The patient's left eye became inflamed at Christmas, 1899, after a slight accidental blow from the skirt of a man's overcoat. On February 9th, 1900—that is to say when the eye had been inflamed for about six weeks—the patient attended the Royal Eye Hospital, Southwark, under the care of Mr. Robert W. Doyne, by whose permission the following extracts have been made from her out-patient letter :—

"February 9th, 1900.—Left eye bad since Christmas, and "getting worse. Had drops in it. Pupil is bound down.
"Ozœna. General haze surface of cornea, with interstitial deposits.
"Posterior synechiaæ, keratitis punctata, and disturbance of the "corneal epithelium. Tension *plus* 1. Ordered atropine drops " (gr. i.) twice a day, together with boric and belladonna lotion " and a shade. Quinine (gr. i.) was also administered three "times a day. March 14th, 1900.—Pupil not dilated. Cornea "infiltrated. Cornea vascularising below. Strength of atropine "increased to four grains to the ounce. March 21st, 1900.— "Worse. Pot. Iod., grs. v. Pil. Hydr. c. Cret., grs. ii. June 22nd, "1900.—Gutt. Atropinæ Sulphatis, gr. i. to the ounce.* March "1st, 1901.—R.V. = 6/60. L.V. = 6/60. August 12th, 1901.— "Vision as noted. Inner half of eyelashes of right eye have "become white. A few grey hairs have also made their "appearance in the frontal region. Eyelashes have all come "out since attending here, and now those of the right eye are as "above. February 24th, 1903.—Drops not in. Slight injection "of the left eye."

Present condition (March 28th, 1905).—The patient's face suggests inherited taint, although beyond a moderately sunken bridge, there are no stigmata of syphilis. Her hair is dead black. The inner half of the right upper lid bears white cilia intermingled with others of the normal black colour. One lash at the outer end of the left upper lid is white. R.V. — fingers at 0.5 m. L.V. = 6/36. R.E.: a series of small pigment spots, arranged in a circular fashion, present on the anterior capsule of the lens. Central parts of cornea hazy, and the entire membrane pervaded with fine "Hirschberg" vessels. Pupil dilates evenly to

*According to the patient's statement, the sight of the right eye was lost suddenly in September, 1900, but the hospital letter bears no note to that effect. At no time has the right eye been reddened like its fellow.

mydriatic. No adhesions are present. A few floating vitreous opacities. A large area of choroiditis surrounds the optic disc and the macular region, and the peripheral parts of the fundus show numerous smaller deposits of disseminated choroiditis. Tension normal. Refraction myopic. L.E. : a somewhat triangular *plaque* occupies the lower two-thirds of the cornea, which contains numerous "Hirschberg" vessels. The posterior synechiæ present prevent the pupil dilating evenly when a mydriatic is used to the eye. There is pigment present on the anterior capsule of the lens. The fundus is not seen very distinctly, but there are certainly no coarse changes present comparable with those noted in the case of the right eye. Tension normal.

Remarks.—There can be little doubt that Sarah P—— has suffered from interstitial keratitis, with inflammation of the uveal tract, as the result of inherited syphilitic taint. It is true that, apart from the condition of the eyes, the evidence is not of a very striking kind, including, as it does, only her physiognomical peculiarities and a somewhat sunken bridge. The obstruction of the nasal duct from which Sarah P—— suffered when a child, is another point in favour of an inherited syphilitic diathesis. Such a condition occurring after the first year of life, in my experience, is almost invariably due to either syphilis or to tubercle. Her age, thirty-two years, is not opposed to the diagnosis, although, broadly speaking, interstitial keratitis usually occurs between the ages of six and sixteen years. Still, I showed at the Polyclinic some years ago an undoubted case in a woman, aged thirty-six years, and R. Marcus Gunn had a similar case in a woman of the same age (*The Polyclinic*, December, 1902). The inflammation in one eye in our present patient followed a slight injury. This history is not altogether uncommon in cases of undoubted interstitial keratitis, where the traumatism doubtless acts as the immediate exciting cause of the inflammation. Cases of the kind have been reported in Germany by P. Stolper (*Zeits. f. Chir.*, September, 1902, Vol. 65, p. 117), and in this country by Bronner (*Trans. Ophthal. Society*, Vol. X, p. 199, 1890), by H. Work Dodd (THE OPHTHALMOSCOPE, Vol. II, 1904, b. 176) and, more recently, by Kenneth Campbell (*Medical Press and Circular*, May 17th, 1905). I have myself seen several such.

The present is by no means the first case in which blanching of the lashes has been known to accompany disease of the uveal tract—iris, ciliary body, and choroid. Some thirty-two years ago Schenkel (*Archiv f. Derm. u. Syph.*, V, p. 137), published an account of a boy, aged nine years, who suffered from severe sympathetic ophthalmitis, and whose lashes on both sides had

suddenly become quite white. Shortly after this, Joseph Jacobi (*Klin. Monatsbl. f. Augen.*, XII, 1874, p. 153), described a somewhat similar case in a locksmith, aged 29 years, whose left eye had been penetrated by a piece of metal. Twenty-five days after the accident, although the inflammation had been of a purulent character, sympathetic ophthalmitis of the other eye developed. Several months later, it was found that many of the cilia belonging to the upper lid of the sympathetically diseased eye had turned white, but whether suddenly or not Jacobi did not take upon himself to say. Nettleship (*Trans. Ophthal. Society*, Vol. IV., 1884, p. 83), has given particulars of a woman, aged 23 years, who suffered from severe sympathetic ophthalmitis, and whose lashes on the side of the diseased eye had become quite white. He referred to an earlier case under the care of Jonathan Hutchinson, in which a similar blanching accompanied a severe plastic inflammation of the uveal tract, of non-traumatic origin. In 1888, Hirschberg (*Centralbl. f. prak. Augenheilkunde*, 1888, p. 15) recorded blanching of the eyelashes in a case of phlyctenular inflammation in a girl of 14 years. In 1892, Waren Tay (*Trans. Ophthal. Society*, Vol. XII, p. 29), reported a case of sympathetic ophthalmitis in a woman, aged 22 years, in whom, three months after the original injury, the eyelashes on both sides were noticed to be becoming white. Tay's case presented the further peculiarity that the eyebrows, also, showed evidences of a similar change. Lastly, I find in the museum attached to the Polyclinic, London, W.C., a beautiful water-colour drawing labelled "Bleaching of the hairs of eyelashes." It represents the face of a young man who had lost both his eyes from "destructive iritis after severe neuralgia in connection with toothache." The cilia are completely white, except for a small symmetrical tuft in each upper lid, which retains its normal brown colour. The picture may possibly represent Hutchinson's patient mentioned above.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

THE EFFECT OF FORMALDEHYDE UPON THE CORNEA.

BY

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One drop of a 40% solution of formaldehyde or formalin was accidentally introduced into the eye of a patient. As quickly as possible, probably within fifteen seconds after the introduction

of the formaldehyde into the eye, the eye was washed out with water, and made as comfortable as possible under the circumstances. For three to four hours after the accident, no special pain or inconvenience was experienced, but within six hours from the beginning the eye began to get very painful, the pain increasing very considerably and keeping up for several hours. The patient used hot and cold douches during all this time.

For the next two or three days the patient, who was travelling, kept the eye bandaged, using a bland ointment, having been so situated as to be unable to consult a medical man.

Five days after the occurrence the patient presented himself to me. An inspection of the eye revealed the following :—the lids of the affected eye were almost closed from swelling and oedema. There was marked photophobia with profuse lacrymation. In addition to this, there was considerable chemosis and ecchymosis of the ocular conjunctiva. The ecchymosis was about 12 millimetres in diameter, circumscribed in character, situated centrally and immediately above the cornea. The cornea may be described as having been "steamy" or opalescent in character, like a superficial keratitis. For precautionary reasons, a weak solution of atropine was instilled into the eye, the pupil dilating readily ; seemingly the action of the formaldehyde had been local in its effect.

The patient, who lived in an adjoining city, placed himself in the hands of a competent oculist, who treated the eye for some three months, using all the well-known stimulant treatments. Some six months afterwards the patient again presented himself to me.

The condition of the eye was then as follows :—to the naked eye, the cornea presents a steamy appearance ; an inspection of it with a high-power glass shows the lower two-thirds of the usual pupillary portion of the cornea possessing an appearance more or less like a fleeting cloud. Probably the term, shaded superficial opalescence, covers the description of the corneal appearance as well as it is possible to express the same in words.

The vision, as might be expected, has been considerably reduced too, and is of a varying character, depending upon the tilting of the head up, down, or sideways. In some positions it was 6/36, while in others the best vision obtainable is 6/12.

By adjusting the head in a certain position, the patient can read Snellen No. 4 with an effort, but nothing smaller. Snellen No. 6 is read with fair facility. The corneal haze, it may be said, is so filmy in character that it is a much finer distinction of corneal opacity or opalescence than is customarily seen ; yet it exists to an appreciable extent both to the naked eye and as the affected vision indicates.

Apart from the injury to the cornea the eye has not been affected.

TWO CASES OF MELANOTIC SARCOMA OF THE CHOROID.

BY

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I am indebted to Mr. Nicholson, to whose care these patients were transferred on admission to the Sussex Eye Hospital, for permission to record them.

CASE 1.—An elderly female came complaining that the sight of her right eye had, for the last six months, gradually failed. There had been no pain or inflammatory symptoms. The only objective signs were a detached retina pushed everywhere right up to the posterior surface of the lens, and an increase of tension. A diagnosis of malignant growth was made, and the eyeball excised. The growth was found to be a melanotic sarcoma of the choroid, about the size of a small filbert.

CASE 2.—Female, aged 32 years, complained of gradual failure of vision of left eye of about four months' duration. There had been no pain or signs of inflammation. The retina, on which the vessels could be seen, was applied closely to the posterior aspect of the lens. Tension was normal. V.=P.L. The ciliary veins were a little distended, but otherwise all was natural. Malignant growth was diagnosed, and the eyeball was excised. When cut into, a thin blood-stained fluid escaped, and a growth was found originating from the back of the choroid.

Pathological Report by Dr. Bushnell, Pathologist to the Sussex County Hospital.—This eyeball was embedded in celloidin and its middle segment examined, as the growth appeared to originate from the tunica media at this level.

The growth is a spindle and round-celled sarcoma, containing much brown pigment, and not very vascular. It originates from the middle layer of the choroid, and has raised the retina in its growth, causing detachment. There is no evidence of its having spread along the optic or ciliary nerves or the venæ vorticoseæ or vessels of the sclera. There has been increase of intraocular tension, leading to fibrillary disassociation of the fibres of the cornea and lens; the ciliary processes on one side are much flattened.

Remarks.—The cardinal symptoms of a sarcoma of the choroid in the early stage are a detached retina, with a rise of tension. The latter is not always present. The diagnosis in the second of these two cases was made chiefly from the extensive retinal detachment. When a retina is everywhere pushed up close against the posterior surface of the lens, there is generally a growth behind it.

Most of these neoplasms of the choroid are melanotic sarcomata, as in both the above cases. The age of 32 years is rather below the average for such a growth. The condition is not common. The two examples above cited are the only two in which the eyeball has been excised for this condition at the Sussex Eye Hospital for certainly the last three years.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—ACCOMMODATION.

- (1) Hess.—On the mechanism of accommodation. (*Ricerche sul meccanismo dell' accomodazione.*) *La Clinica Oculistica*, Febbraio, 1904.
- (2) Tscherning.—The mechanism of accommodation. (*Le mecanisme de l'accommodation.*) *Annales d'oculistique*, mars, 1904.
- (3) Tscherning, M.—The Mechanism of Accommodation. *Ophthalmic Review*, April, 1904.
- (4) Hess.—Observations on the process of accommodation. (*Beobachtungen ueber den Accomodations organs.*) *Klin. Monats. f. Aug.*, 1904, p. 309.
- (5) Knapp, H.—On the interdependence of accommodation, refraction, and the co-ordination of the eye muscles. (*Ueber die Abhangigkeit der Accommodation und Motilität von der Refraktion.*) *Recueil des Travaux X^e Congrès international d'ophthalmologie*, Lucerne, septembre, 1904.

(1) Hess brings forward several facts to show that the theory of accommodation, generally known as that of Tscherning, is incorrect. They are that the lens descends during accommodation, under the influence of gravity. And this descent is increased if eserine be instilled. In these conditions the lens may be seen to tremble when the eye is moved. After iridectomy, the ciliary processes may be seen pressing forward when eserine is instilled, in front of the equator of the lens.

The distance between the ciliary processes and the margin of the lens diminishes in the old after the application of eserine, but in the young the lens lessens during the contraction of the ciliary muscle. Tscherning lays stress on the point that the form of the lens at rest is not the same as that which it has during accom-

modation ; he has, however, not regarded the fact that his "rest" form was that of the lens in air ; Hess points out that the young lens is so fluid that its own weight is potent to alter its form ; this he shows by experiment. A fresh lens is placed in fluid resting on a flat support ; when the fluid completely immerses it the area of contact is very small. As soon as any part of the lens is brought above the water level by drawing off the fluid through a siphon, the area of contact becomes larger, showing that the shape of the lens has changed. Experiments of traction on the zonule of monkeys, show that the anterior surface of the lens is flattened in the centre. Tscherning's theory demands that there should be a rise of pressure in the vitreous during accommodation ; the movements of the lens show that there is no such rise. The theory of Helmholtz, then, is to be received as an accurate description of the mechanism of accommodation, though his other conclusions are not confirmed. HAROLD GRIMSDALE.

(3) In this article, written more or less in answer to Grossmann's paper on the same subject, read at the Ophthalmological Section of the British Medical Association, 1903, Tscherning concludes that during accommodation the ciliary muscle draws upon the nucleus of the lens and thus produces a dilatation of Cloquet's canal, together with a change in the posterior surface of the lens.

C. D. M.

(4) This is a paper contesting the views of Tscherning on the above subject. Hess first takes the assumption of Tscherning that the lens immersed in fluid has the same shape as when in air. A simple experiment showed Hess that the relative increase in weight of the lens on transferring it from water to air was sufficient to cause so considerable an alteration in shape in the equatorial region as to be easily recognised by the naked eye.

Experiments on monkeys' and human eyes freshly enucleated, showed further that tension of zonula caused diminution of the convexity of the lens, while relaxing the zonula caused greater convexity. Tscherning had arrived at an opposite conclusion. Finally Tscherning had maintained that in vigorous accommodation the whole lens did not descend, but only the free mass of the lens in the capsule sac through relaxation of the posterior capsule. He assumed this from the absence of downward movement of the anterior lens-image. In cases of lens disturbance Hess could clearly establish a fluttering movement of the anterior surface as well as of the lens after eserin drops. Direct observation with a lens also showed that during accommodation the epithelium of the front lens-capsule descended. A. BIRCH-HIRSCHFELD.

(5) Knapp is in the habit of testing all patients with latent hypermetropia for esophoria by means of Stevens' photometer. He thinks it possible to determine thereby not only the con-

dition of the eye muscles but also the degree of latent hypermetropia. He says that convex glasses neutralise the lateral displacement in the case of homonymous double images, and so indicate the degree of latent hypermetropic refraction. This view, however, cannot be accepted. For whatever effect convex glasses may have on the relative position of the images can only be due to their prismatic action and not to any influence on the patient's accommodation. C. MARKUS.

II.—EMBRYOLOGY.

- (1) **Cirincione (Genoa).**—Present views regarding the origin of the vitreous. *Ophthalmic Review*, November and December, 1904, and January, 1905.
- (2) **Bufill, Perez.**—A contribution to the study of the embryology of the eye. (*Contribución al estudio de la embriología del globo ocular.*) *Archivos de Oftalmología Hispano-Americanos*, Enero y Febrero, 1905.
- (3) **Matys, V.**—The development of the tear-ducks. (*Die Entwicklung der Tränenableitungswege.*) *Zeitschrift f. Augenheilkunde*, September-Oktober, 1905.
- (2) After a general sketch of the first stages of the development of the eye, **Bufill** deals with the various organs in more detail ; in the case of the lens he describes how the cells of the posterior layer of the primitive ectodermal cup gradually lengthen into the fibres of the adult lens, while the anterior cells make up the subcapsular epithelium. In the study of the retina he comes to the conclusion that the external and internal limiting membranes, alike, are a cuticular secretion of the retinal cells, and are afterwards strengthened by the growth of the fibres of Muller. The primitive fibres of the optic nerve are entirely sustentacular in function, the conducting fibres growing from the nerve cells and insinuating themselves between the supporting structures. As regards the origin of the vitreous, he is in substantial agreement with **Cirincione** (whose paper appeared in *La Clinica Oculistica* of April, 1904*) and considers it to be formed from the secondary mesoderm, carried into the eye with the loop of vessels. The suspensory ligament of the lens is also of mesodermic origin. The article is illustrated by numerous sections of eyes in various stages of development ; unfortunately the delicate structures shown do not lend themselves well to photographic reproduction.

HAROLD GRIMSDALE.

*For abstract see *THE OPHTHALMOSCOPE*, February, 1905, p. 94.

III.—AFFECTIONS OF THE CONJUNCTIVA.

- (1) Trousseau, A.—The prognostic value of subconjunctival ecchymoses. (Valeur pronostique des ecchymoses sous-conjonctivales.) *La Clinique Ophthalmologique*, 15 janvier, 1904.
- (2) Micas, de.—Bulky foreign body in the inferior conjunctival cul-de-sac. (Volumineux corps étranger du cul-de-sac conjonctival inférieur.) *La Clinique ophthalmologique*, 10 mars, 1904.
- (3) Valois.—Electric ophthalmia. (Ophthalmie électrique.) *La Clinique ophthalmologique*, 10 mars, 1904.
- (4) Lacaussade.—The differential diagnosis between conjunctivitis and iritis. (Diagnostic différentiel de la conjunctivite et de l'iritis.) *L'Ophthalmologie Provinciale*, avril et mai, 1904.
- (5) Zur Nedden.—On croupous and diphtheritic affections of the conjunctiva. (Ueber kroupöse und diphtheritsche Bindegauerkrankungen.) *Klin. Monatsbl. f. Augenh.*, 1904, I, p. 439.
- (6) Foster, E. E.—On unpigmented nævus of the conjunctiva. (Ueber unpigmentierten Nævus der Bindehaut.) *Klin. Monatsbl. f. Augenh.*, 1904, I, p. 525.
- (7) Peters.—On some forms of secondary conjunctivitis. (Ueber einige sekundäre Conjunctivitisformen.) *Die Ophthalmologische Klinik*, 25 Oktober, 1904.
- (8) Contino.—Tuberculous ulcer of the tarsal conjunctiva. (Ulcera tuberculare della congiuntiva tarsea.) *La Clinica Oculistica*, Nov.-Dec., 1904.
- (9) Moisonnier.—Clinical varieties of polymorphous erythema of the conjunctiva. (Variétés cliniques des localisations conjonctivales de l'erythème polymorphe.) *La Clinique ophthalmologique*, 10 novembre, 1904.
- (10) Nicolai.—Diplobacillary conjunctivitis. *Ned. Tijdschrift v. Geneeskunde*, 1904, II, p. 716.
- (11) Cramer, A.—Acute catarrhal conjunctivitis. *Journ. of the Medical Society of New Jersey*, February, 1905.
- (11A) Ramos, José.—A dermoid tumour of the conjunctiva. (Un caso de quiste dermoide conjuntival.) *Anales de Oftalmología*, Marzo, 1905.
- (12) Mayou, M. Stephen.—On the changes produced by inflammation of the conjunctiva. *Lancet*, March 4th, 11th, and 18th, 1905.

- (13) Posey, William Campbell.—**Conjunctivitis petrificans.** *Annals of Ophthalmology*, April, 1905.
- (14) Wray, Charles.—**The treatment of follicular conjunctivitis.** *Lancet*, April 29th, 1905.
- (15) Ischreyt.—**Epibulbar carcinomata.** (Ueber epibulbare Carzinome.) *Zeitschrift für Augenheilkunde*, Mai, 1905.
- (16) Wherry, George E.—**Purulent ophthalmia and the treatment by argyrol.** *Lancet*, 27th May, 1905.
- (17) Sexe.—**Foreign body in the upper conjunctival cul-de-sac for 22 years.** (Corps étranger du cul-de-sac conjonctival supérieur toléré pendant 22 ans.) *L'Ophthalmologie Provinciale*, juillet, 1905.
- (18) Stieren, Edward.—**A case of acquired cyst of the conjunctiva, containing an embryonic tooth-like structure.** *Bulletin of the Johns Hopkins Hospital*, September, 1905.
- (19) Forshaw, W. J.—**Primary syphilis of the conjunctiva.** *British Medical Journal*, 14th October, 1905.
- (20) Thompson, G. W. and Chatterton, Edgar.—**Cyst of Krause's gland.** *Trans. Ophthalmological Society*, Vol. XXV (1905), p. I.
- (21) Chatterton, Edgar.—**Argyrosis of the conjunctiva occurring in a woman working with fulminate of silver.** *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 46.
- (22) Fergus, Freeland.—**Malignant disease of conjunctiva** *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 40.
- (1) Troussseau points out that subconjunctival haemorrhage is only rarely a sign of any importance as regards hemorrhagic effusions in retina or brain. Nearly always it is quite trivial, and due to some strain in coughing, sneezing, vomiting, and so forth. ERNEST THOMSON.
- (3) Valois describes two cases in which there had been considerable exposure of the eyes to the arc light. In one case the symptoms were those of an acute conjunctivitis without diminution of vision, in the other the symptoms were diminution of visual acuity with dazzling accommodative trouble, sluggishness of the pupils, concentric contraction of the visual fields and pallor of the temporal portions of the discs, with normal vessels and eye-grounds. Two months later the fields remained contracted (it is not stated to what extent), but the V.A. which was originally $\frac{1}{10}$ without refraction error, is not given at the later date. The patient used alcohol and tobacco sparingly. ERNEST THOMSON.

(5) According to **Zur Nedden**, conjunctivitis crouposa should be distinguished from *C. diphtheritica*.) In the croupous form the membrane lies loosely upon the conjunctiva, while in *C. diphtheritica* the membrane sooner or later permeates the tissue of the conjunctiva, making it anaemic and necrotic. In both diseases diphtheria bacilli, streptococci, and staphylococci were found present, sometimes isolated and sometimes together.

A. BIRCH-HIRSCHFELD.

(6) **Foster** describes a case anatomically examined by him of unpigmented nævus conjunctivæ in a girl of 13 years. The reader must be referred to the original for the anatomical details as well for the important observations connected therewith.

A. BIRCH-HIRSCHFELD.

(7) **Peters**, of Rostock, draws attention to some forms of conjunctivitis which are not due to any infection or direct injury to the conjunctiva, but are the result of some constitutional defect (gout) or of the irritation caused by lid affections, as eczema, blepharitis, molluscum contagiosum, or even by such a remote disease as urethritis posterior. The treatment should accordingly consist in the removal of the cause, and only the changes in the conjunctiva which develop after continuous irritation may be treated locally. Peters recommends for this purpose the use of zinc—ichthyol ointment, to be followed by scraping of the thickened epithelium.

C. MARKUS.

(8) **Contino's** case was that of a child, aged 10 years. The ulcer affected the upper lid, and was recognised as tuberculous, both by its clinical characters and by pathological and experimental research. The child was treated by injections of two kinds, after the manner of Marigliano, the one supposed to attack micro-organisms ("siero anticorpo"), the other antitoxic. Treatment, which began on 21st March, was soon followed by improvement of the condition of the lid, and by 28th April the ulcer was healed. Four weeks after the apparent cure the child became very ill, and died in a few days, comatose, of tuberculous meningitis. Whether the cure had anything to do with the sudden outburst is not considered.

HAROLD GRIMSDALE.

(9) After some reference to polymorphous erythema in general, **Moissonnier** recounts the various appearance which it may present when the conjunctiva is attacked. He sums up these in five types : (1) *Hyperæmic type*, simple diffuse redness of the conjunctiva ; (2) *Papular type*, the commonest, one or several rosy papules are situated at the internal angle of the conjunctiva ; (3) *Bullous type*, which is rare ; (4) *Chemotic type* ; (5) *Pseudo-membranous type*, the exudate is limited to the tarsal conjunctiva. The disease is described as benign and self-curing.

ERNEST THOMSON.

(10) **Nicolai** observed several cases of chronic conjunctivitis in which the Morax-Axenfeld diplo-bacillus was present. He thinks this affection is difficult to cure, and may be the cause of a severe entropion. Salicylate of zinc (0.5 % solution) appeared to give the best results. G. F. ROCHAT.

(11A) **Ramos'** case was that of a child, aged ten years, who had "hairs growing in her eye." A number of long black hairs were visible, coming from behind the lid and protruding from the palpebral fissure. They were found to come from a small pedunculated growth, which was adherent to the conjunctiva of the upper fornix. The mass was removed without difficulty. The seat of the tumour is very unusual. Ramos points out that Ryba's theory of the origin of these tumours breaks down in face of a case like the present. HAROLD GRIMSDALE.

(12) These three communications represent the Hunterian Lectures delivered by **Mayou** before the Royal College of Surgeons of England in February and March, 1905. The most varied pathological, histological, developmental, and clinical points are discussed, but it impossible to do the lectures justice in a brief abstract such as is suited for the columns of THE OPHTHALMOSCOPE. Those interested in the points raised by Mayou should consult the original communications.

(13) A healthy coloured woman, aged 30 years, had been subject for eighteen years to relapsing inflammations of her eyes. **Posey** found the palpebral conjunctiva, especially of the upper lids, deeply injected and studded with numerous yellowish-white areas lying under the epithelium. The lower fourth of each cornea participated in the change, being vascular and superficially infiltrated with somewhat similar products. Symptoms of irritation were slight. Treatment included dissecting out many of the chalky areas, and in employing atropine and a solution of boric acid.

(14) In **Wray's** hands the following treatment for follicular conjunctivitis has proved itself to be infallible. After the individual follicles have been touched with cocaine, they are emptied by pressure between the two thumb nails, one placed inside and the other outside the eyelid. The site of the follicles is then painted with argyrol, 20 %, and in about a couple of minutes, the argyrol is fixed in the tissues by applying a little adrenaline, 1:1,000. For home use, a lotion of mercury cyanide, 1:10,000, is prescribed.

(15) **Ischreyt** describes two cases of epibulbar sarcoma. The first commenced in the upper fornix of the conjunctival sac, and spreading backwards involved the sclera and cornea, but did not perforate into the interior of the eyeball. The tumour is surrounded by an area of small round celled infiltration. The second

case was a recurrence of a carcinoma of the lid extending to the surface of the eyeball, involving a considerable area of sclera and cornea, but without perforating the eye. The author discusses the method of propagation in these cases, and is of the opinion that small round celled infiltration is a reaction of the organism to the invading tumour, and opposes a barrier to its progress, and also that the dense layers of the sclera and cornea and the membranes of Bowman and of Descemet act similarly.

A. LEVY.

(17) **Sexe** (of Besançon) records a case in which a piece of crochet needle, 22 mm. long and 3 mm. thick, remained embedded in the upper conjunctival cul-de-sac for 22 years, and, finally gave rise to the formation of a polypus, upon the removal of which the needle was unexpectedly discovered. He also mentions other similar cases.

R. J. C.

(18) A girl of 16 years came to **Stieren** on account of a tumour of the left eyeball, noticed for the first time when she was ten years of age. It has increased in size somewhat rapidly during the last two-and-a-half years. A growth, having the dimensions and shape of a navy bean, and closely resembling a



dermoid cyst (*see figure*), lay in the ocular conjunctiva of one eye, and could be made to shift its position slightly by pressure applied to the edge of the eyelid. The growth was excised, and its cavity found to contain a little straw-coloured fluid, as well as what appeared to be "a well-formed, beautifully white, incisor tooth."

The tooth, which was covered with loose periosteum, had head, crown, neck, and fang. It measured 15 mm. in length, 9 mm. in its widest diameter, with an average thickness of 2 mm. Histological examination, after slow decalcification by weak hydrochloric acid, revealed a well-developed bone formation, with lamellæ, lacunæ, canaliculi, and Haversian systems. By employing the indigo-carmine stain, a few Sharpey's fibres could be demonstrated between the lamellæ. The author quotes a somewhat similar case by Galtier (*Annales d'oculistique*, mars, 1895).

(19) **Forshaw** reports from Kalgoorlie, West Australia, an instance of primary syphilitic sore upon the ocular conjunctiva.

(22) A girl of nine years presented a curious condition of the ocular conjunctiva of one eye, which was covered with soft, sprouting granulations of pale colour. Pathological examination of a bit of excised tissue led to no conclusive results. The remainder of the growth was removed, but fifty-four days later the child was readmitted on account of a recurrence, which had involved the orbit and displaced the eyeball. A diagnosis of leuco- or lympho-sarcoma was made. Exenteration of the orbit was followed about a month later by recurrence. The child died about eleven months after she was first seen by **Fergus**. At the autopsy, the tumour was found to involve the anterior and middle fossa of the skull, and to extend into orbit, naso-pharynx, and mouth.

IV.—LEUCOCYTHEMIA.

- (1) **Ahlstroem**.—A case of pseudo-leucæmic orbital tumours. (*Fall von pseudoleucaemischen Orbitaltumoren.*) *Klin. Monatsbl. f. Augenheilkunde*, 1904, Bd. II, p. 276.
- (2) **Werner, L.**.—Symmetrical tumours of the orbits in a case of acute lymphatic leucocythemia, with rapidly fatal result. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 180.
- (3) **v. Michel**.—Metastatic choroidal tumour in a case of suspected Hodgkin's disease. (*Metastatische Aderhautgeschwulst bei vermutlicher Hodgkinscher Krankheit.*) *Zeitsch. f. Augenheilkunde*, November, 1905.

(1) The case was in a man of 60 years, who suffered from exophthalmos of both eyes. In the region of the lacrymal gland a tumour could be felt; the orbits were filled with a compact mass. The extirpated tumour consisted of lymphatic tissue. The lymphatic glands were swollen, and there were several tumours in

the skin. The blood was normal. After arsenic treatment, the tumours were softer, but did not disappear; the general health was worse. The time of observation was only one month.

A. BIRCH-HIRSCHFELD.

(2) **Werner** reports symmetrical solid tumours in both orbits, accompanied by partial suppuration of one cornea, in a lad, aged 14 years, suffering from acute lymphatic leucocythemia. Numerous haemorrhages were present in the fundus of the eye that could be examined with the ophthalmoscope. The red blood corpuscles numbered only 1,672,000, as compared with 62,000 white, and the latter were most exclusively large lymphocytes. A few small lymphocytes were present, but a long search was necessary before a single polymorphonuclear or eosinophile cell could be discovered. The patient died six days after admission to hospital, and twenty days after the beginning of the illness.

S.S.

(3) **v. Michel** records a curious case of a metastatic tumour of the choroid in a man who had been suffering for some years from an obscure condition of the mediastinum with enormously enlarged supraclavicular glands—a condition which had been diagnosed as Hodgkin's disease. The eye was enucleated, and the tumour, on microscopic examination, was found to be an alveolar adeno-carcinoma. The patient subsequently died, but no *post-mortem* examination could be made, and the situation of the primary growth remained uncertain.

A. LEVY.

V.—INTRA-OCULAR TUBERCULOSIS.

Jessop, Walter H.—A discussion on intra-ocular tuberculosis. *British Medical Journal*, 26th August, 1905.

A discussion on intra-ocular tuberculosis, opened by **Walter H. Jessop**, took place in the section of ophthalmology, at the annual meeting of the British Medical Association, at Leicester in July, 1905.

Jessop limited his remarks to intra-ocular tuberculosis, *i.e.*, tubercle of choroid, iris, ciliary body, and retina. He adduced an analytical table of twenty cases of solitary tubercle of the choroid, collected from literature. In miliary tuberculous choroiditis, tuberculous meningitis was nearly always present. Thus, at St. Bartholomew's Hospital, in fifteen cases of tubercle of the choroid found in the dissecting room, fourteen had tuberculous meningitis, and the remaining one tubercle of lungs, peritoneum, kidneys, spleen, and other organs. It was, therefore, not a fact, as stated by Horner, that tubercle in the pia mater contraindicated its existence in the choroid. Jessop had never

seen an instance of primary intra-ocular tuberculosis, and doubted if such a condition existed. In acute miliary tuberculosis, tubercle of the choroid probably existed in about 50 per cent. of the cases, *post-mortem*, and in from 30 per cent. to 35 per cent. ophthalmoscopically. As to the frequency of choroidal lesions in chronic phthisis, especially pulmonary, Jessop was unable to find any note in the St. Bartholomew's Hospital registers, but, according to Carpenter and Stephenson, those changes occurred in 9·24 per cent. of the cases of chronic surgical tuberculosis in children. With respect to the vexed question of so-called "obsolescent tubercle of the choroid," Jessop had himself seen only two indubitable cases of the kind, watched for four and for five years respectively. The absence of much scarring and the total lack of pigmentation seemed to distinguish the cases from those of syphilitic type. Jessop laid some stress on absence of vitreous opacities, and of marked pigmentation, in the diagnosis of miliary tubercle of the choroid. He had had little experience of tuberculin, although he was confident that the old product often did harm. He thought that the eye should seldom be removed in cases of intra-ocular tuberculosis, since operation would rid the patient of one focus of disease only, and might lead to dissemination of the virus. Out of 11 cases which ended fatally after the excision of a tuberculous eye, no less than 8 died within two months from tuberculous meningitis. This was a great contrast to Schieck's 13 cases treated with tuberculin, in which all were cured and no eye was lost. **Hess, Hern, J. T. Thompson, Shaw, Beaumont, Victor Horsley, and Harman**, took part in the discussion that followed the reading of Jessop's communication: **Thompson** mentioned a case of death from tuberculous meningitis a few weeks after removal of an eye on account of tuberculous choroiditis and iritis. **Karl Hess** had enjoyed a considerable experience of tuberculin employed for diagnostic purposes, while therapeutically he had never observed any ill effects from the agent. **Beaumont**, gave particulars of a somewhat remarkable case in a child, where a (?) tuberculous ulcer of the margin of the cornea healed, but was followed by episcleritis, scleritis, iritis, optic papillitis, and retinitis. After these various incidents, an enlarged gland over the clavicle was incised and tubercle bacilli were demonstrated in the thick pus liberated by the incision.

VI.—EMBOLISM AND THROMBOSIS.

- (1) Stocké, E.—On a case of embolism of the central artery of the retina in both eyes at the same moment. Recovery of sight. (Over un geval van gelijhzijdige embolie van de centrale tlajade der beide netoliezen. Uerstelling van het gezicht.) *Medisch Weekblad voor Noorden Zuid-Nederland.*, X, 1903, page 501.
- (2) Genth, Ad.—A further case of embolus of central artery of the retina, where a small parapapillary area remained undisturbed. (Ein weiterer Fall von Freibleiben eines parapapilläre Netzhautbezirkes bei partiellem Verschluss der Art. centr. retinæ.) *Archiv für Augenheilkunde*, 1904, Bd. II, p. 109.
- (3) Sidler - Huguenin.—I. Separation of the endothelial layer in the central artery and canalised thrombus in the central vein, giving the clinical picture of venous thrombosis. (I. Abhebung des Endothelrohres in der Central-arterie und kanaliserter Thrombus in der Centralvene unter dem klinischen Bilde der Venenthrombose verlaufend.) II. Short description of a similar case of separation of the intima. (II. Ein ähnlicher Fall von Intimaabhebung.) *Archiv für Augenheilkunde*, Bd. II, 1904, p. 27.
- (4) Gonin.—Re-establishment of the retinal circulation by anastomoses after obstruction of the central artery. (Rétablissement de la circulation rétinienne par des anastomoses à la suite d'une obstruction de l'artère centrale.) *Annales d'oculistique*, T. CXXXIII, p. 167, mars, 1905.
- (5) Coats, George.—Obstruction of the central artery of retina. *Royal London Ophthalmic Hospital Reports*, Vol. XVI, Part 3, October, 1905.
- (6) Zazkin, A. B.—A case of embolism of the central retinal artery. (Ein Fall von Embolie der Arteria centralis retinæ.) *Wochenschrift für Therapie und Hygiene des Auges*, 2 November, 1905.

(1) An old man suffering from heart disease suddenly lost the sight in both eyes. Stocké, who was on the spot within twenty minutes, found embolism, made him take digitalis, strophantus, and wine, and massaged the eyes. Next day, great improvement; second day, complete recovery. Stocké assures us that he was perfectly certain about the diagnosis.

G. F. ROCHAT.

(2) **Genth** describes a case of embolus of the central artery of the retina, in which a distinct area of the retina, stretching from the disc towards the macula, retained its normal appearance (and function), and ophthalmoscopically presented a very marked contrast to the affected retina round it. In this case the area in question seems to have been supplied by a twig of the central artery of the retina which had remained patent, and not, as is most frequently the case, by a cilio-retinal artery.

LESLIE PATON.

(3) **Sidler-Huguenin** in this paper cites several cases from the literature in which microscopical investigation showed that, whatever ophthalmoscopically seemed to be typical cases of embolism of the central artery or thrombosis of the central vein, turned out really to be the results of changes in the vessel walls, such as endarteritis obliterans or arteriosclerosis. His own first case presented a fairly typical picture of thrombosis of the central vein (*haemorrhagic retinitis*). The microscopical examination showed very interesting changes in the artery and vein. The endothelium of the artery had become separated over a considerable distance (*dissecting aneurism*). At one point the vessel communicated with a much dilated series of anastomosing arterioles, through which evidently a good deal of the circulation was maintained. In the opposite side of the artery from this point of communication the separated endothelium had proliferated to form a considerable mass, filling a large portion of the lumen. On the proximal side of this there was a clot filling part of the artery. In the vein there was an old clot which had become canalised. The appearances suggested to the author that the primary lesion was a dissecting aneurism.

In his second paper he describes the microscopical appearances of a case which he takes to represent an early stage of a similar process. In this the tunica intima was only separated over a small distance immediately behind the lamina cribrosa.

LESLIE PATON.

(4) In a woman, aged 64 years, **Gonin** found, three months after the occurrence of an embolism of the central artery, absolute loss of vision with complete atrophy of the optic nerve. The retinal veins were about half their normal size, while the arteries appeared by the indirect method to rise on the retina some distance from the edge of the papilla but could be seen by the direct method really to commence on the disc as very fine twigs, none of which sprang from the physiological cavity. Some of the arteries were supplied by two or more such twigs. Gonin explains the condition as due to dilatation of the normal communications between the arterial circle of Zinn, and the central

retinal system described by Leber, and considers the case to shew that in some instances, at any rate, the re-establishment of the retinal circulation after embolism of the central artery, takes place collaterally, and is not due to restored patency of the usual channel.

R. J. COULTER.

(5) Coats has been able to find 24 cases in which eyes having obstruction of the central artery of the retina, have been examined pathologically. Although many of the cases have been ascribed to embolism, yet those most recently investigated show that the blocking was due rather to endarteritis, or to thrombosis, or to both factors. At the same time some of the cases have undoubtedly been due to embolism.

Coats has himself examined two cases pathologically. Case 1 was in a woman, *ætat* 52 years, who was first seen by R. W. Doyne at Oxford in 1892. She had commencing cataract which in 1900 Doyne removed, and the patient obtained 6/18 vision. Three months later Doyne needled the capsule, and on the fourth day afterwards she was quite blind. On examination the fundus showed the typical changes seen with a blocked artery. The patient had mitral and aortic disease. The eye never regained vision, but a low form of iritis set in and the patient died three years after the operation. The eye was removed after death.

The disc was deeply cupped. The smallest retinal vessels showed hyaline degeneration, many of the larger ones were collapsed and obliterated, while certain others were fairly normal and contained some blood. On the side of the cup both arteries and veins were highly sclerosed. A calcareous mass completely filled up one vessel, but this had not the appearance of an organised blood-clot. The walls of the veins were enormously thick, its lumen was represented by a small slit only, while further back even this became obliterated. The retina was extremely atrophied. The glaucomatous changes were due to the inclusion of capsule in the extraction wound, and were not the result of the changes in the back part of the eye.

The calcareous mass found in the artery could not, from its appearance, have been produced in the position in which it was found, but was in all probability a calcareous nodule from a diseased aortic valve. At first the arteries become thread-like from the sudden cutting off of the blood supply. Later, as the result of some collateral circulation some refilling takes place. Finally, fibrosis of the vessel walls becomes marked and we see ophthalmoscopically a very thin stream of blood in an artery with much thickened walls.

Case 2 presented itself as a branch obstruction, but the condition of the main stem was most interesting. The patient was a gentleman, *ætat* 65 years, whose right eye had suddenly become

defective. On examination the superior temporal artery was narrowed, and its blood stream was interrupted, the tension was normal. A month later, violent pain set in, with acute glaucoma, and as the eye was blind, it was excised.

Many of the retinal vessels, both arteries and veins, were found to be much diseased, although others appeared to be normal. The smallest vessels showed much hyaline degeneration. The main stem of the artery near the optic nerve was almost filled by proliferating endothelial cells, but some lumen remained. The artery was here much collapsed, but it suddenly regained its full size, but with its lumen almost blocked by endarteritis. Still further back was a calcareous nodule. The vein was found to be divided up into a number of loculi by connective tissue trabeculae. The chief changes in the retina consisted of large exudations between the two nuclear layers, with œdema of the nerve fibres and ganglion layers. The optic nerve was somewhat atrophic.

As the main artery was so much obstructed, it is easy to see that the vessel which was most narrowed might easily be deprived of its blood almost entirely, and thus give rise to the appearance of its having been blocked.

The third case was not examined pathologically. The patient was a man, *ætat* 52 years, who had obstruction of the inframacular branch of the inferior temporal artery of the right side. He had had syphilis six months previously, and various curious phenomena were seen on different occasions through the ophthalmoscope; the superior temporal artery became obstructed, and portions of the field corresponding to these blocked vessels became blind. This was a case of vascular obstruction in which embolism was out of the question, and it was probably due to endarteritis.

The paper concludes with a summary of twenty-four cases which have been published and examined pathologically. C. D. M.

(6) **Zazkin** describes the appearance of the fundus in a man, *ætat* 43 years, who suffered from valvular disease of the heart, and who became suddenly blind of one eye. In addition to the usual appearances of embolism, there were numerous haemorrhages of varying size and shape. ERNEST THOMSON.

VII.—QUININE AMBLYOPIA.

- (1) **Reina**.—Quinine poisoning. (*Intoxication quinique.*) *La Clinique ophtalmologique*, 10 août, 1903.
- (2) **M'Gillivray, Angus**.—Quinine amaurosis, with notes of a case. *Scottish Medical and Surgical Journal*, November, 1904.

- (3) Altland. — Experimental researches upon the pathogenesis of the disturbances of vision by quinine-intoxication. (*Experimentelle Untersuchungen zur Pathogenese der Sehstörungen bei Chinin-Vergiftung.*) *Klin. Monatsblätter f. Augenheilkunde*, 1904, Bd. II, p. I.
- (4) Miller, G. Victor.—A case of quinine amblyopia. *British Medical Journal*, August 19th, 1905.

(1) Reina reports a case in which a soldier, aged 30 years, accidentally took about 20 grammes of quinine in one dose. He became unconscious, and remained so for three days. On recovering consciousness, he was blind, and complained of severe headaches and tinnitus. Hearing gradually returned, the headaches diminished, but remained more or less up till the time of writing ; the blindness did not begin to pass off for fifty-six days. When examined by Reina, six months after the event, V.= $\frac{1}{2}$ and No. 3 (de Wecker) at 22 c.m.; F. of V. greatly contracted, complete colour-blindness. Pupils slightly dilated, and not reacting well. O.E. "Discs perfectly white, ischaemic, as in the advanced stage of white atrophy, with sharp edges and very thin vessels," some of the vessels were replaced by white lines. Maculæ reddish. "Indeed, the ophthalmoscopic picture somewhat resembles that of embolism of the central retinal artery when the atrophy is complete, and that of the white atrophies consecutive to acute papillitis. The treatment included fifteen minutes' ocular massage twice daily ; nitrate of amyl inhalation every second day ; strychnine by the mouth ; frontal and temporal rubbing with tincture of nux vomica and "baume de Fioravanti."*

ERNEST THOMSON.

(2) The case here recorded is that of a Ceylon tea planter, aged 54 years, who saw M'Gillivray on September 24th for quinine blindness of four years' standing. He was a heavy drinker, and being exhausted by long travelling, he was given by an hotel proprietor a heaped-up dessertspoonful of quinine, as he was supposed to be suffering from fever, and then put to bed. He slept well, but on awaking the next afternoon, he found he was absolutely blind. On the third day he was able

* This extremely complicated medicament has the following composition :—

Térébent. du mélèze	...	...	500	Galanga	...	...	...	50
Résine élémi	...	...	100	Zédoaire	...	...	...	50
" tacamaque	...	...	100	Gingembre	...	...	...	50
Succin	...	...	100	Cannelle	...	...	...	50
Styrax liquide	...	...	100	Girofle	...	...	...	50
Galbanum	...	...	100	Muscades	...	...	...	50
Myrrhe	...	...	100	Feuilles de dictame de Crète	...	...	...	50
Aloès	...	...	50	Alcool à 80c	...	...	3,000	
Baies de laurier	...	...	100					

to distinguish light from dark, and on the eighth day he could read a letter he had written. The sight gradually improved, although his peripheral vision has never been regained, and he is liable to stumble over objects unless he is looking straight at them. He has never been a smoker. His vision in each eye is now 6/5 partly and J.1, and the fields are narrowed, especially above and below. The colour and light sense are normal. The whole subject of quinine blindness is then discussed.

C. D. M.

(3) The author examined the effect of quinine poisoning in the laboratory of Prof. Uhthoff (Breslau), on the eyes of dogs, cats, and rabbits. Using Nissl's method he found hypercolorisation and chromatolysis of the ganglion cells and shrivelling of the nucleus. The granules of the interior layer also showed symptoms of degeneration. Altland's results entirely agree with the facts found by Ward Holden, Druault, and Birch-Hirschfeld. Once (with Marchi's method) he observed degeneration of the fibres of the optic nerve. A. BIRCH-HIRSCHFELD.

(4) Miller reports particulars of a case of amblyopia in a ship's captain, aged 55 years, who had taken five grains of quinine daily for three to four weeks. The patient, temperate in the matter of alcohol, had been until recently a heavy smoker. Recovery in about a month under nitroglycerine internally.

VIII.—RETINITIS PUNCTATA ALBESCENS.

- (1) Quirin.—Upon *retinitis punctata albescens*. (*Ueber Retinitis punctata albescens.*) *Klin. Monatsbl. f. Augenh.* 1904, II, p. 19.
- (2) Galezowski, Jean.—Congenital *retinitis punctata albescens*—congenital hemeralopia. (*Rétinite ponctuée albescente congénitale — héméralopie congénitale.*) *Recueil d'ophthalmologie*, décembre, 1904.
- (3) Pascheff, C.—*Retinitis punctata albescens*. *Ophthalmic Review*, March, 1905.

(1) Quirin describes a case of retinitis punctata in a girl of 18 years, with hemeralopia and retinal torpor. He thinks the yellowish-white spots in the retina are formed by degenerated tissue.

A. BIRCH-HIRSCHFELD.

(2) Judging from published records, cases of *retinitis punctata albescens* appear to be somewhat rare. Galezowski recites two cases which he observed in two brothers, 34 and 21 years of age. The classical symptoms—reduced central vision and contracted

visual fields (marked in dull light) and hemeralopia were present. These were associated with a brownish-grey colouration of the fundus in the central area, and the presence of numerous small round white spots, which were plentiful towards the periphery and absent from the macula. The disc was rose-coloured and the vessels were slightly contracted. The family history showed that their parents and grandparents were cousins, and consanguinity is regarded as a potent factor in the production of this disease. The symptoms are identical with those of retinitis pigmentosa, but the latter is more liable to be attended with atrophy of the optic disc and sclerosis and narrowing of the retinal vessels. Posterior polar cataract, also, has never been observed in retinitis punctata albescens. The lesion in both of these diseases appears to be a sclerosis of the vessels of the chorio-capillaris, and, according as the vascular sclerosis extends to the retinal vessels or the choroidal vessels, retinitis pigmentosa or retinitis punctata albescens will be produced respectively.

J. JAMESON EVANS.

(3) This rare condition belongs to the same class as retinitis circinata, retinitis striata, etc. Mooren was the first to draw attention to this variety of disease, and, in describing it, said "that the retina and choroid seem as though they were pierced by a great quantity of small holes, through which one can see the dull reflex of the sclera," and this accurately describes the condition seen in retinitis punctata albescens.

The case here described is that of a boy, aged 14, who for 7 or 8 years has suffered, off and on, from night blindness. It appeared probable that the father had been affected with syphilis. In both eyes were seen several hundreds of small white spots scattered all over the fundus. They were independent of the blood vessels which passed over them, and which were normal. The retina appeared to be normal. The central vision was normal, but the fields were slightly contracted. He showed signs of hereditary syphilis, and was treated accordingly, and after a time his night blindness almost disappeared and many of the spots had lost their brilliancy. A similar case occurred in a girl aged 18 years, whose symptoms resembled the previous case.

As regards pathology, Gayet and Fuchs consider it due to disappearance of retinal pigment, while others think it is the result of inflammation of the external retinal layers, and Wedl and Bock showed this to be the case in an eye they examined microscopically; according to them this appearance is due solely to oedema of the retina. Pascheff, however, is of opinion that the theory of Gayet and Fuchs more readily explains the disease in the cases he describes.

C. D. M.

IX.—SQUINT.

- (1) **Theobald, Samuel.**—Are tenotomies for hyperphoria necessarily more uncertain in their results than those for esophoria and exophoria? *Trans. Amer. Ophthal. Society*, Vol. X (1903), part I, p. 154.
- (2) **Koster, W., Gzn.**—Monocular diplopia after operation for squint without any physical cause. (*Monoculaire diplopie na genezing van strabismus divergens zonder physische vorzaah.*) *Ned. Tijdschrift voor Geneeskunde*, No. 26, 1904.
- (3) **Fergus, A. Freeland.**—Stereoscopic treatment of squint. *Ophthalmic Review*, December, 1904.
- (4) **Hähnle.**—On Strabismus convergens intermittens. *Die Ophthalmologische Klinik*, 20 Februar, 1905.
- (5) **de Lapersonne, F.**—Ocular torticollis and sursumvergent strabismus. (*Torticulis oculaire et strabisme sursumvergent.*) *Archives d'ophtalmologie*, octobre, 1905.

(1) Upon the whole, **Theobald** has had satisfactory results from tenotomy in esophoria and exophoria, but his results in hyperphoria leave something to be desired. He discusses the reasons for this discrepancy, *viz.* : (1) that the lateral muscles are more definitely under the patient's control, and (2) that more help can be got from glasses in the case of the lateral muscles. Illustrative cases are quoted.

(2) Every eye-surgeon knows that under certain conditions one eye can see double. Subluxation of the lens is the usual cause, when it still partly covers the pupil. But diplopia is also observed in incipient cataract, in opacities of the cornea, or in irregular astigmatism. If there are two openings in the iris, diplopia can only be present when the eye is not exactly focussed for the distance at which the object is observed. But in all these conditions the diplopia is caused by the formation of two images in the retina, and there is no difficulty in explaining it. But how to explain diplopia in a perfectly well-built eye, in which actually only one image is formed on the retina? Thus far, we possess only *one* well-authenticated case, investigated and described by Bielowsky from Sattler's clinic. It may not be superfluous to refer to this case in a few words, before we mention **Koster's** observation. Bielowsky's patient was a man having a convergent squint in the left eye. His other good eye had to be taken away after an injury. Seven days later he complained of seeing all things double, and, as nothing abnormal could be found in the eye,

Bielkowsky concluded that, during the squinting period, the spot where the image of the object fixed by the normal eye was formed (and the centre in the brain connected with it) had somewhat taken the function of a central fovea, and that the place of the objects in space was judged from the position of their images to this pseudo-fovea. In a normally fixing eye, an image lying, for instance, to the right of the fovea centralis, would be interpreted as belonging to an object in space situated to the left of the middle line. In this same way the patient's squinting eye localised an object to the left of the middle line if its image fell on the right side of the pseudo-fovea. But, after the fixing eye had been enucleated, the patient had to make the most of the squinting eye, and naturally the real, original fovea, by its superior structure, was the most advantageous spot to be used for fixation, and, as it took up its original function again, by-and-by the place of objects in space began to be judged from the proper fovea, as in normal eyes. But the higher centre associated with the pseudo-fovea, did not at once give up the dominating place it had occupied for so long, and so, during a certain time, there acted two centres for localisation simultaneously. Thus, if the patient fixed an object right before him, its image, now falling on the proper fovea, caused the sensation of an object right in front, but at the same time, the cerebral centre associated with the pseudo-fovea, interpreted the same image, because it lay to the left of the pseudo-fovea, as to belong to an object to the right of the middle line. Thus, from the simultaneous function of two centres for localisation, the patient got a *double* sensation, from *one* image only. Of course, every possibility of simulation must be excluded before such an explanation could be accepted. By strict examination with very ingenious methods, Bielkowsky and Professor Wering, to whom the case was shown, satisfied themselves that simulation was out of question.

Koster's own observation is described as under. A young man of 18 years had a divergent squint of the right eye of 20° for five years. Choroiditis disseminata in both eyes. Sight of left eye $4/24$, with cyl. + 3.5, axis 5° nasal \cap sph -2 = $4/6$ nearly; sight of right (squinting) eye : = $4/24$, with cyl. + 3.5 axis 12° nasal \cap sph -2 = $4/18$. No diplopia. The squint was corrected by tenotomy and advancement. Ten days after the operation, correct position of the eyes, but diplopia on using both eyes together (homonymous double-images at 20° from each other). *But with right eye only, he also saw two images* of a candle flame at 20° from each other. The following experiments brought the explana-

tion : if both eyes were kept open, and a red glass was placed before the right eye, the candle-flame appeared in a *soft red* colour, and 20° to the right of it, a *pure red* image was visible. If, still both eyes being kept open, a red glass was placed before the left eye, the candle flame appeared *soft red*, and the image to the right was *yellow*. If the left eye was shut, and a red glass placed before the right eye, both images appeared pure red, and were of equal brightness. These experiments showed that, in looking with both eyes at the flame, the two images falling on the real foveæ were fused, as proved by the soft red (mixed from red and yellow) colour of the image. But the sensation caused by the pseudo-fovea in the right eye was always kept apart, and localised to the right. Four months later the patient was seen again. Double images could only be observed with both eyes together, not in monocular vision. Including simulation and all the conditions which would allow a pure optical explanation, Koster holds that Bielowsky's view, that a pseudo-fovea is formed, is enforced by his own case. He also expresses his opinion that these observations do not support the theory that the identical spots of the retinæ are anatomically connected, as defended by Thering.

J. F. ROCHAT.

(3) In this communication **Fergus** pays tribute to the work done by Worth on fusion training, and describes what he considers necessary for the development of this faculty in those who do not possess it to a normal degree. He also points out the fact that some persons, although they have no squint, and have two perfect-sighted eyes, may yet have no idea of binocular vision. As proof of this is mentioned the fact that one may sometimes test the vision of one eye and find it good, then, on covering the other eye, the patient may say that this eye is blind and he can see no letters at all until his attention is called to the fact that the other eye is uncovered, and then he may be able to read the letters as well as he did before. "They appear to have the power, where both eyes are good, of disassociating the vision due to one from that of the other." With regard to treatment, stereoscopic exercises are of the utmost value, and the fixing eye should be bandaged for several hours each day; if the squint be alternating, then each eye must be alternately excluded for three or four hours daily. With regard to stereoscopes, the author thinks highly of those by Doyne and Landolt, and Worth's amblyoscope affords another admirable example of a stereoscopic instrument. What, however, he thinks even better are coloured pictures called "plastograms," which consist of nearly similar pictures printed on the same paper,

one of which is of a greenish and the other of a reddish colour. If a red glass is put in front of one eye, and a green glass before the other, the images combine to form a stereoscopic picture; and if the patient has binocular vision, the objects in the foreground will move relatively to those of the background if he moves his head from side to side—this apparent movement proves binocular vision. The patients derive much benefit by practising with this simple apparatus.*

C. D. M.

(4) **Hähnle** observed the rare condition of intermittent convergent squint in two patients at Prof. Königshöfer's *clinique* in Stuttgart. In a girl, aged ten years, and in a boy, of seven years, the left eye was found to squint on every second day. This alternation, the cause of which remained obscure, was quite regular. On the non-squinting days binocular vision was perfect, but on the squinting days double images could not even be elicited. Both eyes in these cases were hypermetropic, and had full vision. Atropine and correction of the error of refraction did not influence the condition, nor were other means more successful.

C. MARKUS.

(5) **de Lapersonne** discusses torticollis brought about in children by a vertical deviation of the eye, and describes such a case in a healthy lad of seven years who manifested no diplopia, although the sight of each eye was normal. The simplest explanation of this rare condition is that given by Landolt (*Bulletin médical*, 22 juin, 1890), namely, that children assume the vicious attitude, in order to avoid troublesome diplopia. **de Lapersonne**, however, believes that the matter is much more complicated. Before ocular torticollis can be produced, two factors are necessary:—1st, there must be a congenital deviation of the eyes, or at least one dating from early infancy; 2nd, the deviation must be of the sursumvergent variety, in itself exceedingly uncommon. It would appear as if the torticollis were originally the outcome of an attempt to avoid diplopia, while later the torticollis persisted, although the diplopia disappeared. In order to correct the deviation, **de Lapersonne** recommends advancement of the paretic muscle.

S. S.

* "The Plastographic Apparatus as a Test for Binocular Vision." See
THE OPHTHALMOSCOPE, Vol. II, p. 311.

X.—MISCELLANEOUS.

Baslini, C.—Ophthalmometrical researches. (*Recherches ophtalmométriques.*) *Archives d'ophthalmologie*, septembre, 1904.

Clarke, Ernest, and Hawthorne, C. O.—Optic neuritis, ocular paralysis, and absence of the knee-jerks in a case of chlorosis. *Lancet*, 30th April, 1904.

An unmarried woman, aged 22 years, suffering from a moderate degree of chlorosis, complained of diplopia and failure of sight of recent development. Upon examination, Clarke and Hawthorne found paralysis of the left external rectus muscle, optic papillitis, a few retinal haemorrhages, and absence of knee-jerks. Under rest in bed and full doses of iron, the patient made a satisfactory recovery, extending even to the restoration of the knee-jerks. The paper contains interesting speculations with regard to the nature of the connection between the chlorosis and the other recorded conditions.

Bell, George Huston.—Report of a case of melan sarcoma of the limbus in an eye with normal vision, followed by enucleation. *Archives of Ophthalmology*, November, 1904.

Bell believes that enucleation is the most conservative treatment when a positive diagnosis of melanosarcoma has been made.

FRANK W. MARLOW

Valude, E.—Opacities of the vitreous body. (*Les troubles du corps vitré.*) *Bull. gén. de Thérapeutique*, 30 mars, 1905.

Valude's communication deals with vitreous opacities, their character, diagnosis, symptoms, causes, and treatment. In extremely obstinate cases, which have failed to respond to mercurials and iodides, the author recommends the subconjunctival injection about once a week of four or five drops of Sourdille's solution, the formula of which is:—potassium iodide, 1 gramme; metallic iodine, 0.02 centigr.; water, 30 grammes. Injections of sublimate beneath the conjunctiva, according to the following formula, may also be tried:—water, 50 grammes; sublimate, 0.01 centigr.; and sodium chloride, 1 gramme: Dose.—Four to five drops to be injected every two or three days.

H. de V.

Pascheff, C.—A new instrument for iridotomy. *Ophthalmic Review*, March, 1905.

Chevalier.—A contribution to the study of the rare forms of sympathetic ophthalmia. (*Contribution à l'étude des formes rares de l'ophtalmie sympathétique.*) *L'Ophthalmologie Provinciale*, juin et juillet, 1904.

Chevalier gives notes of cases occurring in his own practice, or recorded by others, in which sympathetic disease took the form of (a) keratitis ; (b) choroido-retinitis ; (c) chronic glaucoma ; and (d) retinal detachment. R. J. COULTER.

Haass.—Are wounds of the eye infected with ink specially dangerous? (*Sind mit Tinte verunreinigte Verletzungen des Auges besonders gefährlich?*) *Woch. f. Ther. u. Hygiene des Auges*, 2 Februar, 1905.

Haass quotes a case by Oppenheimer and two of his own to show that wounds of the eye by inky pen-nibs are not so specially infective as might be thought. Haass's own cases are shortly as under :—(1) A boy, aged 10 years, was stabbed in the eye with a pen. There was a penetrating wound below centre of the cornea, with adhesion of the iris. The parts were stained with ink. Lens not involved. T. minus 2. The case made a good recovery, the absorption of the ink staining seeming to be aided by the use of an ointment containing 5 per cent. of dionine. (2) In this case a nib pierced the upper lid and penetrated the sclera, 2mm. above the limbus. T. minus 2. V.=5/50. Recovery in ten days without reactionary phenomena and with normal sight.

That ink possesses strong bactericidal powers is shown not only by the foregoing cases but also by the experiments of Calendoli. That observer found that pyococci and typhoid bacilli disappeared after fifteen minutes immersion in ink. On the other hand, tubercle bacilli were still active after four days in ordinary black ink. S. S.

Antonelli, A. — A simple method specially useful in operating on certain forms of chalazion. (*Méthode simple, de choix, pour l'opération de certaines formes de chalazien.*) (*Eine einfache Methode für die Operation gewisser Formen der Chalazien.*) *La Clinique Ophthalmologique*, 10 juillet, 1905, and *Die Ophthalmologische Klinik*, Oktober 20, 1905.

Antonelli uses a narrow two-edged knife introduced in the intermarginal space for all lower lid chalazions, and for those in the upper lid which are situated near the free border of the tarsus. Anæsthesia and haemostasis are obtained by finger and thumb pressure. ERNEST THOMSON.

Duret.—On the pathogenesis of the syndrome of Cerebral Tumours. (*Sur la pathogénie du Syndrome des tumeurs Cérébrales.*) *La Clinique Ophthalmologique*, 25 novembre et 25 décembre, 1903.

In this somewhat long paper Duret summarises the work done on this subject by himself and others. It may perhaps suffice to quote his conclusions. "It may be concluded that the syndrome of cerebral tumours depends upon several pathogenic factors, intracranial increase of tension, toxo-infection, cerebral oedema, and irritation and hyperæmia. All these phenomena are present in different degrees in every neoplasm of other organs in the human body, as Adamkiewicz has already pointed out. But, when the tumour is intracranial they have a special intensity and bearing; hypertension is the most important of them on account of the resistance of the bony walls."

ERNEST THOMSON.

Meisling, Aage.—An instrument for mixing colours and testing the colour sense. (*Ein Apparat zur Mischung der Farben und Untersuchung von Farbenblindten.*) *Recueil des travaux X^e Congrès international d'Ophthalmologie*, Lucerne, septembre, 1904.

In Meisling's instrument the mixing of colours is effected by means of the following contrivance: from a green and red glass the light passes on to an opposite pane of ground glass which can be moved in a plane parallel to the former whereby its distance from them as well as the angle of incidence of the two coloured lights is varied. In this way the amount of red and green light reaching the pane is regulated and the various shades of red, orange, yellow, yellow-green, and green are produced.

C. MARKUS.

Thomson, Erwin.—A Case of Aspirin Intoxication. *Therap. Monatshefte*, No. 1, 1904, and *Interstate Medical Journal*, March, 1904.

Johann A., æt. 17 years, came to the writer with a follicular tonsilitis. Having no one to care for him, local treatment was not possible. External compresses were ordered and aspirin, gr. v. three times daily. Two days after, the patient was found with fever, comatose, pharynx unchanged, eyelids greatly swollen, cheeks red and oedematous and covered with yellow bullæ about half an inch in diameter. On opening one of the latter it was found full of clear serum. An indifferent ointment was prescribed for the face and the aspirin discontinued. The patient was not seen again for

nearly a month. The face had healed without scars, but the entire scalp excepting the occipital region was bald, although on close observation a fine growth of hair indicated that the baldness would be temporary. The writer believes that the production of bullæ and of an alopecia must be interpreted as an aspirin intoxication, although the dose, gr. v. (ten powders in three days), was certainly a moderate one. He adds, however, that the youth showed a stunted growth, suggesting an age of twelve rather than of seventeen years. The case shows that aspirin, however indispensable it may have become, should be administered only under the observation of the physician.

Harman, N. Bishop.—The visual fields in tobacco amblyopia.

Lancet, 17th September, 1904.

Harman has investigated the condition of the field for white in 25 patients suffering from tobacco amblyopia, and finds that they are diminished peripherally. A test-object, 20 mm. square, was employed, and the fields were then taken in (a) full daylight, and (b) daylight, the intensity of which had been reduced to about one-tenth, by drawing the blinds of the room. Under the former conditions the outer limits of the field were found to be normal, whereas under the latter, a peripheral reduction of from 10° to 30° could be demonstrated. Furthermore, with reduced illumination it was found that the central region showed a loss of power in detecting white objects 1 to 20 mm. over a larger or smaller area, according to the intensity of the case. The losses in perception of red and of dimly-lighted white objects are stated to be coincident. As the amblyopia recovers, the fields of vision become normal, an observation confirmatory of the accuracy of Harman's observations. The author, finally, regards the changes he has found as confirmatory of Arlt's original view when he described this form of amblyopia as due to an inflammation of the retina.

Bistis, J.—Ocular complications during lactation. (Des complications oculaires pendant la lactation.) *Archives d'ophtalmologie*, juillet, 1904, p. 456.

After having glanced at the cases of optic neuritis observed during the period of lactation by Nettleship, Heinzel, Axenfeld, and Schmidt-Rimpler, **Bistis** gives brief particulars of two new observations, one of neuro-retinitis and the other of iritis. Amongst other eye affections seen during lactation, Bistis enumerates blepharitis, conjunctivitis, keratitis, paresis of accommodation, choroiditis, and posterior polar cataract. They are, however, much rarer under the circumstances than neuritis,

retro-ocular or otherwise. The main lines of treatment comprise weaning of the baby, and the use of sudorifics, in order to eliminate toxic substances from the system. Trunecék's serum might be useful on theoretical grounds. Prognosis, in general, is good.

H. DE V.

Sattler, Robert.—*Sympathetic neuro-retinitis and serous uveitis following enucleation with implantation of glass globe—Resection of optic nerve—Recovery.* *Trans. American Ophthalmological Society*, Vol. X, Pt. II (1904), p. 337.

On February 8th, 1904, Sattler's patient received a charge of bird-shot in his left eye, an accident followed by irido-cyclitis and recurrent haemorrhage. Fifteen days after the injury, the wounded eye was enucleated, a glass ball was placed in Tenon's space, and the recti muscles and conjunctiva were sutured over the "artificial vitreous." Twenty-five days after operation, the patient was discharged, the parts then being in excellent condition. Sixty-three days after the accident and forty-eight days after the Frost-Lang operation, neuro-retinitis, serous uveitis, and defective sight were present, the symptoms having commenced some time previously. There was no tenderness, even when firm pressure was made upon the glass globe. Sattler removed the glass sphere by dissection, and at the time resected about 2.5 cm. of the optic nerve. Less than forty-eight hours after the operation the patient was able to count fingers at six feet, and there had come about almost complete subsidence of redness and irritability. A sudden relapse a few days later necessitated the adoption of inunction and vapour baths, followed by the administration of iodide. Forty days after the resection, the papillo-retinitis had receded, and vision had risen to 0.6. Syphilis not present. The case, according to Sattler, shows "that contrary to accepted opinions, sympathetic neuro-retinitis and certain expressions of serous uveitis may be excited, even after enucleation of an eye destroyed by a non-infectious lesion."

Fergus, W. Freeland.—*Operation for Ectropion.* *Trans. Ophthalmological Society*, Vol. XXIV (1904), p. 261.

The operation described by Fergus is so self-obvious that, as he himself says, it has probably been adopted by other surgeons, although the ordinary text-books do not mention it. In cases of ectropion, due to hypertrophy of the tissues near the free margin of the lid, induced by chronic blepharitis, Fergus separates the healthy from the diseased conjunctiva by means of an incision running from the inner to the outer canthus. The healthy conjunctiva is next freed from the underlying structures right down to the region of the retro-tarsal fold. The hyper-

hypertrophied conjunctiva is then excised throughout its entire extent ; and, finally, the remaining conjunctiva is secured by a few points of suture to the margin of the eyelid. The success of the operation depends entirely upon the thoroughness with which the excision of the hypertrophied tissue is carried out.

Cohn, Paul.—Unsuccessful results in intra-ocular disinfection with iodoform. (*Ueber Misserfolge der intraokularen Iodoformdesinfektion.*) *Zeitschrift für Augenheilkunde*, Januar, 1905.

Cohn has collected a formidable list of damaged eyes, resulting from attempted disinfection of the interior of the eyeball by means of the injection of iodoform. The cases were collected from the literature of the subject, and the results obtained in the clinic of Professor Silex in Berlin. The conclusion Cohn arrives at is that the practice is a dangerous one, and the advantages are more than counterbalanced by the attendant risk. A. LEVY.

Stuelp.—Permanent male fern Amaurosis, caused by the worm cure amongst the Hill People of the Westphalian Coal Districts. (*Ueber dauernde Filix-mas Amaurosen bei der "Wurmkur" der Bergleute im Rhein-Westf. Kohlen-Revier.*) *Arch. für Augenheilk.*, Bd. LI, p. 190, 1904.

The amaurosis occasionally produced by extract of male fern is of doubtful origin. It has been suggested that the primary change is a poisoning of the ganglion cells or nerve fibres ; but in opposition to that theory, which is mainly founded on microscopical observations made some time after the occurrence of the poisoning, is the view that the drug acts on the unstriated muscle fibres of the small vessels, and causes intense arterial spasm with consequent thrombosis of the central artery of the retina. **Stuelp's** observations on a case of male fern poisoning lend support to this latter view. He saw the patient first about twelve hours after the probable commencement of the blindness, about nineteen hours after the commencement of symptoms of poisoning, and about twenty-eight hours after the administration of the dose (8 grms. of Extr. Fil.-mas æth.). Both pupils were nearly fully dilated and fixed. The retina in both eyes was in a state of intense oedema, giving a snow-white reflex. The vessels could only be seen as streaks here and there in the oedema. The edges of the discs were obscured. The arteries were reduced to tiny threads. In the right eye the blood stream in the arteries was broken up into small pieces. In the left it was continuous. The veins were swollen and tortuous. The condition commenced to subside the same evening. Next day the arteries were distinctly fuller and several haemorrhages

had appeared in the fundus. A month later there was complete atrophy of both discs with tiny arteries and veins and white areas of retinal disturbance scattered over the whole fundus.

LESLIE PATON.

Rabitsch, F.—Upon hyaline bodies at the optic disc. (*Zu Kenntnis der Drusen im Sehnervenkopfe.*) *Klin. Monatsbl. f. Augenheilk.*, Januar, 1905.

Rabitsch reports the case of a woman, aged 24 years, whose sight had always been defective. Both optic discs, especially the right one, were the seat of so-called hyaline concretions. The right disc was of trapezoid outline, and its edges showed a lobulated appearance. Its central parts retained a normal reddish tone, but its periphery was occupied by yellowish-white rounded bodies, piled one upon another. Although most of these bodies were globular, yet some were cupped. The retinal vessels, which manifested no departure from the normal, lay over the "Drusen," and showed a parallactic displacement, so that the disc conveyed the impression of forming a mushroom-like prominence, although a trifling difference in refraction only could be made out between the summit of the disc and the surrounding retina. A difference amounting to about 2.5 D. existed, however, between the arch of the vessels and the concretions below them. Emmetropia. R.V. = 0.2; L.V. = 0.6. The fields of vision showed certain alterations. The light-sense was considerably reduced (Foerster, 9 mm.).*

S. S.

Ormond, Arthur W. — Keratomalacia. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 62.

Ormond met with bilateral keratomalacia of mild type in an infant of ten months, the youngest of a family of fourteen children.

Nettleship, E. — Note on the prognosis in chronic serpiginous ulcer (Mooren's ulcer) of the cornea. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 64.

Collins, E. Treacher — Two children in the same family with congenital opacities of both cornea. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 49.

Collins reports congenital opacities of the cornea in the first and the last child of a family consisting of three members. No injury during birth.

*For abstracts of recent papers on hyaline bodies see THE OPHTHALMOSCOPE Vol. I, p. 227 (Morton and Parsons), and Vol. II, p. 329 (Cirincione).—EDITORS.

Doyne, R. W. and Stephenson, Sydney.—Unusual condition of a corneal cicatrix. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 48.

Doyne and Stephenson found curious transparent spots, resembling bits of pigment, in the leucomatous cornea of a lad of twelve years, who was subsequently ascertained to be a member of a family liable to what has been termed "family degeneration of the cornea."

Meyer, Otto.—On enucleation of the eyeball under combined local anaesthesia. (Die Enucleatio bulbi in kombinierter Lokalanästhesie.) *Klin. Monatsbl. f. Augenheilkunde*, Februar, 1905.

In 1887 Herrnheiser reported seven enucleations of the eyeball performed under local anaesthesia induced by the subconjunctival injection of cocaine. Since then similar methods have been adopted by Wicherkiewicz, Chibret, Novelli, Haab, Jackson, Armaignac, Mohr, and other operators. In the present communication Meyer describes the method he has adopted in eighty enucleations. The first part of the operation, including the division of the conjunctiva and the snipping of the tendons, is done under simple instillations of cocaine, to which adrenaline is added if the eyeball be vascular. The final steps—that is, the division of the optic nerve and of the ciliary nerves—are done after first injecting deeply into the orbit by means of Ahnelt's syringe, half a syringeful of Schleich's No. 2 solution (Cocaine hydrochlor. 0.1.; Morph. hydrochlor. 0.025; Sod. Chlor. 0.2; Distilled water, 100.0). Of the eighty patients who were operated upon by this method, 46 said they suffered no pain, while 24 complained of slight, and 10 of severe pain. The last group included, without exception, instances of chronic glaucoma and of severe cyclitis in sensitive persons whose general health had been reduced by disease. S. S.

Koll, C.—A case of brown discolouration of the cornea by chromium. (Ein Fall von Braunfärbung der Hornhaut durch Chrom.) *Zeitschrift für Augenheilkunde*, März, 1905.

Koll recounts the case of a man, employed in a dye works, who came with a brownish discolouration of that part of the cornea which was uncovered by the lids. He had been working, dyeing velvet by means of a hot solution of chromic acid, and was in the habit of wiping his eyes with his hands and with damp rags. The chromic acid thus brought in contact with organic substances in the presence of light forms chromic oxide which produces the brown discolouration. A. LEVY.

Hirschberg, J.—The limitation of infective processes in the eye commencing from scars. (Die Hemmung der von Schnitt—Narben ausgehenden Vereiterung des Augapfels.) *Centralbl. für prakt. Augenheilkunde*, Juli, 1905.

Hirschberg lays stress upon the dangers of infective processes beginning in scars, if thin, or when thinning has occurred, and especially in cystoid cicatrices. This infection is apt to come on at any time, and must be treated promptly and energetically if the eye is to be saved. He advises cauterization of the infected portion with the galvano-cautery. This must be thoroughly done even if it be necessary to enter the anterior chamber. Hypopyon or fibrinous material in the anterior chamber is to be removed through a corneal incision made for the purpose. Two illustrative cases are cited.

A. LEVY.

REVIEWS.

The Pathology of the Eye. By J. HERBERT PARSONS, B.S., D.Sc. (Lond.), F.R.C.S. Vol. II, Histology.—Part 2. London : Hodder & Stoughton, 1905. Price, 15/- net.

Volume II. of Mr. J. Herbert Parsons book, "The Pathology of the Eye," contains chapters 7 to 13, and the subjects dealt with are: lens, vitreous, choroid, retina, optic nerve, orbit, and lacrymal apparatus. This volume comprises pages 389 to 770, which is rather more than is contained in the first volume, which made its appearance in 1904.

The plan of the book is precisely similar to that adopted in Volume I. First, the development and structure of the normal tissue with which the chapter deals is described, and, then, the various pathological processes to which the structure is subject are given in detail.

The chapter on the lens gives a very good description of the several forms of cataract. The vexed question as to the exact origin of lamellar cataracts is fully discussed, and the various theories which have been held to account for the condition of the lens, the defective enamel of the teeth, and the occurrence of fits in those suffering from this form of disease, are fully set forth, together with the references to the literature where these theories were first published. Even now it is not settled with certainty

whether lamellar cataracts are congenital or infantile in origin, although there is much evidence to show that the opacity may increase considerably after birth.

The most interesting condition described when speaking of diseases of the vitreous is the occurrence of parasitic cysts. The cysticercus is relatively common in some countries, notably in Germany, while it is but seldom seen in others, as England. Two cases only of undoubted echinococcus have been described as yet in this country, namely, one by Hill Griffith and the other by Louis Werner.

Chapter 9, on diseases of the choroid, is a long one consisting of 98 pages, and the diseases of this portion of the eye are fully dealt with. A lengthened description is given of the colloid bodies so often seen in the choroid of elderly people. The origin of these bodies is hardly as yet settled, and so many different theories have been held that it would take some considerable space even to enumerate them. Most pathologists accept the theory of a cuticular secretion from the pigment cells, admitting, however, that in the later stages, the greater part of the cytoplasm of the cells may be degenerated and form hyaline material; the nuclei and perinuclear protoplasm persist and contribute to the formation of the pigmentary capsule. Many other theories are held as to the origin of the superficial capsule of pigment. Although these bodies are most commonly seen in old age, yet they have been observed in youth, as well as in various pathological conditions of the eye.

With regard to ossification of the choroid, this is acknowledged to be the final stage of degeneration of the organized inflammatory deposits of plastic choroiditis; the bone is never developed through cartilage, but is always of the periosteal type; the theories which have been held concerning its exact place of origin are fully described by Mr. Parsons.

A good description is given of the tumours of the choroid, including such rare ones as dermoids, myoma, and angioma, while the sarcomata are, of course, fully described. An excellent article is devoted to the somewhat rare condition of secondary carcinoma of the choroid.

The retina is next undertaken, and in this long chapter of upwards of 100 pages we find a complete description of the various pathological conditions met with.

The portion devoted to wounds and injuries is particularly full and instructive. It is based on some experimental work which the author, as well as some other workers, did a few years ago. One cannot, however, help thinking that a very much larger amount of space has been devoted to this subject than has been given to other and perhaps more important points.

A full description is given of most retinal diseases, but there is a particularly good account, with numerous illustrations, of retinitis proliferans, which the author thinks arises in the following way : some toxic condition leads to a retinal haemorrhage, which if small will not give rise to any large proliferation of new tissue. If it takes place in the neighbourhood of the disc, its irritating effects will cause the mesoblastic tissue to proliferate in its efforts at repair. Hence, the fact that retinitis proliferans invariably springs from the disc or its vicinity.

Considerable space is devoted to the description of glioma of the retina, and references are given to all important communications on the subject. The other primary tumours of the retina, about which (in some at least) considerable doubt exists, are dismissed in a few words.

Mr. Parsons is great on colloid bodies. They were very fully discussed when treating of diseases of the choroid, and now again in the chapter on Diseases of the Optic Nerve, considerable space is devoted to them.

The interest in the chapter on optic nerve diseases chiefly centres around inflammation and atrophy, which are such prominent features in so many diseases. From a pathological point of view, the tumours form a most interesting group. They are subdivided into two : the primary intradural, and the primary extradural. Full descriptions are given, with reference to all the published cases.

The pathological conditions found in the orbit consist of cysts of all varieties : congenital, implantation, serous and parasitic : while the tumours which occur here, both malignant and benign, are fully set forth. Tumours involving the walls of the orbit secondarily are enumerated.

The last chapter deals with the lacrymal apparatus. There is not much to be said about the lacrymal sac, other than the common condition of dacryocystitis, while the cysts and tumours of the lacrymal gland are not numerous.

After a careful perusal of Volume II, we cannot but heartily congratulate the author on the splendid work he is developing on the pathology of the eye. Previously those working at this fascinating subject were forced to spend days in looking up literature, while by the aid of Mr. Parsons' book they will now be able to attain the same end in a few minutes. Volume II is quite up to the standard of Volume I, and we look forward to the remaining parts with interest. It is a work which no one practising ophthalmic surgery can afford to be without, and it will remain for years a monument of industry, reflecting the greatest credit on the author, who deserves the gratitude of all English-speaking surgeons.

Ueber das Lymphom resp. Lymphadenom der Lider und der Orbita. Von WILHELM RÜCKEL, approb. Arzt in Giessen. Halle a. S: Verlag von Carl Marhold. 1906. Mk. o.80. **Lymphoma or Lymphadenoma of the lids and orbit.** By WILHELM RÜCKEL, of Giessen.

In this pamphlet the author relates the details of an interesting case of lymphadenoma which fell under his care, and was operated on by him, and he also gives references to many cases of this somewhat rare disease that have been reported in the journals of his own and foreign countries. His own case occurred in a girl of 17 years of age, of slender build, and apparently of a healthy stock. She had suffered from whooping cough at the age of three, but had not since that time been in the doctor's hands. About a year previous to being seen she noticed on the inner side of the right orbit a swelling which varied in size, and became more prominent as the result of a violent cough, but was not at any time painful. When seen by Dr. Rückel she was pale but healthy. The right eye was prominent and slightly everted owing to a swelling about the size of a bean, which projected at the inner part of the lower lid on that side. On pressure, the tumour was found to be soft and compressible but without pulsation, and it did not increase in size when the head was lowered. Vision of left eye $\frac{5}{4}$ R.E. $\frac{5}{6}$. The fundus of both eyes normal. With the Maddox rod double images appeared on looking upwards, but she could fix correctly with both eyes. An operation having been decided on, an incision was made similar to that for extirpation of the lacrymal sac. A small cyst-like formation, the size of a date, was first met with, and on further dissection, which was accompanied by but little bleeding, a larger but also cyst-like body was exposed, of the size of a large cherry. Efforts at vomiting caused some haemorrhage into the cavity left by the removal of the tumour, but no bad results followed, and the wound healed in three weeks. The vision at that time had improved to $\frac{5}{5}$, and there was some epiphora. Microscopical examination of sections of the tumour showed numerous lymph follicle-like structures embedded in connective tissue and directly connected with distended lymphatics. The lymph follicles presented a clearer germ-centre, whilst peripherally the nuclei were more closely aggregated and gave the section a darker aspect. Besides these were numerous cysts of various size, the walls of which consisted of a single layer of endothelium. The contents of the cysts were friable with blood and here and there leucocytes with round nuclei, the whole sometimes concentrically disposed. The intermediate tissue contained ordinary fat cells, small haemorrhages, and pigment cells. There were also lance-

head-shaped spaces from which cholesterol crystals had fallen out. Dr. Rückel divides the cases he has collected into two groups : the first consisting of symmetrical lymphomata ; the second, of unilateral lymphomata. The first group includes simple lymphadenomata, leucæmic lymphadenomata, and pseudo-leukæmic lymphadenomata and these constitute the greater number of cases. Of the unilateral lymphomata, only five cases have been up to the present time recorded. H. POWER.

Ophthalmic Neuro-Myology : A Study of the Normal and Abnormal Actions of the Ocular Muscles from the Brain side of the question. By G. C. SAVAGE, M.D., Nashville, Tenn., U.S.A. Small 8vo., pp. 221. Thirty-nine full-page plates and twelve illustrated figures. Published by the Author, 1905.

As stated by the author, this book is intended as a companion volume to his well-known work upon "Ophthalmic Myology." The hypothesis upon which this study is founded may be stated in the author's words as follows :—"There are eight conjugate brain centres in the cortex, by means of which the several versions are effected, and one conjugate centre by which convergence is caused. These conjugate centres act alike on orthophoric and heterophoric eyes, and when there is only one eye. Each of these is connected with two muscles, and the work done by the centre and its muscles, under the guidance of volition is normal. The conjugate centres have no causal relationship with the heterophoric conditions, nor have they any power for correcting them. There are twelve basal centres, each connected with only one muscle. If the eyes are emmetropic-orthophoric, these centres are for ever at rest ; but when there is any form of heterophoria, one or more of these centres must be ever active, during all working hours. These centres do not cause heterophoria, but they stand ready to correct it. Under the guidance of the fusion faculty, each basal center stands ready to act on its muscle whenever there is a condition that would cause diplopia ; they may be called fusion centres." He further, and most properly says, "If the above hypothesis accounts for every phenomenon connected with the normal and abnormal actions of the ocular muscles, as it seems to do, then it ceases to be a hypothesis and becomes a scientific fact."

He bases this special study of the action of the ocular muscles upon pathology and physiology. Experimentation upon "the lower animals has shown that irritation at a certain point of the motor area of the left cortex will cause both eyes to turn to the right, spasmodically, and that destruction of this part of the

cortex will cause both eyes to turn paralytically in the other direction ;" he also says, that "irritative and destructive disease of the cortex, in human beings, have shown the same thing."

He believes that "there seems no good reason for doubting the existence of conjugate cortical brain centres for the control of the ocular muscles, notwithstanding the fact that the scalpel and the microscope can never trace the two fibres, or two sets of fibrils, from the one common brain centre to the two muscles (one belonging to each eye) under its control" "There is one basal centre for each ocular muscle, and each centre can act only on one muscle. The basal centres are all under the control of the fusion faculty of the mind, and none of them are ever called on to discharge neuricity unless a condition exists that would cause diplopia." The central causative factors of the several heterophoric conditions are thus given careful and methodical study : this portion of the work constitutes most interesting reading.

The author very pertinently says "Whence comes the symptoms of heterophoria is a question that may never be satisfactorily answered. Do they come directly from activity of basal brain centres whose normal state is rest ? Or do they come from the fusional contraction of the ocular muscles ? He believes that there must be the two co-existing states : brain centre excitation and muscle contraction." He further says "May not the forced activity of the fusion faculty of the mind for the time suspend, or otherwise interfere with some other faculty of the mind—just as deep thinking may modify the faculty of hearing, or just as the mastery of an emotion may suspend the power of reasoning ? Intense and unceasing activity of any one mental faculty must cripple, to a greater or less extent, every other mental faculty. Some faculty of the mind must preside over every organ of the body. It must appear that each of these faculties can do its best only when no other faculty is overtaxed. The fusion power is a mental faculty that presides over a little kingdom at the base of the brain, consisting of twelve individual centres, each of these centres being connected with a single ocular muscle. This mental power, as already shown, has nothing to do when the two eyes are orthophoric, hence could not be a source of interference with any other mental process. In heterophoria the fusion faculty must be continually active during all waking hours, hence may impair the effective working of any or all other faculties. Since correcting heterophoric conditions brings rest to the fusion faculty of the mind as well as to the basal centres and their respective muscles, such work should not be neglected."

He justly believes that "from whatever standpoint we may view the symptomatology of heterophoria, there can be but one

logical conclusion as to treatment—that is, to readjust the relationship between the muscles, so that there may be equality of tonicity. From this readjustment by exercise or operations comes rest to the fusion faculty of the mind, rest to the basal centres, and rest to the muscles. Relief cannot come through the mind, nor as the result of any attempt, however impossible, to change the nature of the basal centres, so that work to them may be the same as rest. So long as there is unequal tonicity of the ocular muscles, binocular single vision will be possible only as the result of disturbed mental equilibrium, overworked brain centres, and unceasing muscle contraction."

"Two eyes are better than one" only when the muscles are well adjusted. Readjustment of unbalanced muscles is one of the great achievements of modern surgery."

The concluding words of the book—"one thing deserving emphasis, in closing this chapter, is the fact that the man or woman who assumes to correct errors of refraction and muscle errors should acquaint himself or herself, first of all, with human anatomy and physiology, and especially with that most wonderful and complicated part of man, the nervous system, which presides over the nutrition and controls the function, of every other organ and part. Nor should he stop with a perfected knowledge of anatomy and physiology, but he should acquire a knowledge of general and special pathology, of symptomatology, of chemistry, of *materia medica*, and general and special therapeutics. In other words he or she should be required to complete a graded course of study, covering four years, in a reputable medical college; for correcting errors of refraction, and muscle errors, is as much a part of the practice of medicine, as is the treating of a case of pneumonia or the setting of a broken bone," cannot be too strongly endorsed.

C. A. O.

Traité des Tumeurs de l'Oeil, de l'Orbite, et des Annexes.
Treatise upon the Tumours of the Eye, Orbit, and Annexes. By FÉLIX LAGRANGE; 2 vols. Paris: Steinheil, éditeur. Price per volume, 30 francs.

This fine treatise, the most complete known upon this subject, consists of two large volumes, richly illustrated, and edited with great care.

It contains ten books, the first five treating of tumours of the ocular globe and forming the first volume; the five following books, devoted to tumours of the optic nerve, of the orbit, and of the lacrymal apparatus, of the eyelids and of the neighbouring parts of the orbit, form the second.

Every variety of tumour is here studied in detail : symptoms, anatomy, pathology, etiology, pathogeny—indeed, a complete history is given, throwing into relief the different opinions of writers and followed by a crowded bibliography. On every page one meets with numbers of personal observations, upon which are based new classifications of tumours and original ideas upon the evolution or the nature of certain affections. For example, Lagrange divides tumours of the cornea into (1) tumours developed in relation to the middle layer ; that is to say, of a conjunctival or endothelial nature—cysts, myxoma, fibroma, sarcoma : (2) tumours developed in relation to the elements of the epithelial layer—carcinoma, epithelioma, and epithelial plaques.

In chapter three of the first volume an observation of myoma of the uveal tract is reported in detail, followed by a minute microscopic examination. A little further on, in chapter four, there is to be found a new division of tumours of the retina, based upon histology and embryology. *A propos* of tumours of the optic nerve, Lagrange draws attention to the nature of mucous sarcoma and their encapsulation. This explains the tumours as relatively benign, and recommends partial operation, which may be by the method of Krönlein, or by that of Lagrange, who severs the optic nerve at the summit of the orbit, and completely reverses the globe, in order to estimate the state of the posterior part, and the possibility of its conservation.

En résumé, it is an excellent treatise, containing an enormous amount of personal work and patient research, which deserves the consideration of every ophthalmic surgeon.

Die Wirkungen von Arzneimitteln und Giften auf das Auge.

Handbuch für die gesammte ärztliche Praxis. Von Dr. L. LEWIN, Professor in Berlin, und Dr. H. GUILLERY, Professor in Cöln. In zwei Bände, mit 99 Textfiguren. Berlin : Hirschwald, 1905, pp. 857 und 1044. **The Action of Drugs and Poisons on the eye : A Manual for general medical practice.** By Dr. L. LEWIN, Professor, in Berlin, and Dr. H. GUILLERY, Professor in Cologne. 1905. Price 52 M.

(Concluded from page 53)

The latter part of the second volume is devoted to (1) those drugs which subdue febrile attacks and exert an antiseptic action. These include quinine, cinchonin, and cinchonidin ; antipyrin ; lactophenin ; amidophenol and phenacetin ; salicylic acid and salicin ; carbolic acid ; boracic acid ; creolin and lysol. (2) Anthelmintics, such as flores cinæ; santonin ; filix mas ; cortex granati ; pelletierin ; extractum filicis and cortex granati ; picric acid and some others. (3) Drugs which affect the functions of the heart and vessels and of the kidneys, such as digitalis ;

strophanthus ; colchicum ; helleborus nigra and foetidus ; veratrum album and veratrin ; oxalic acid ; hamamelis virginica ; amylnitrite ; adrenalin and various other substances such as Morrison's pills, the evil effects of which, when taken in large numbers, he suggests may be due to stramonium.

The account of the toxic action of quinine is remarkably full and clear. The effects produced by this drug are said to be dependent upon the dose, the mode of administration, the particular salt taken, and the idiosyncrasy of the individual. That the action varies with the salt is to be expected, when it is remembered that the hydrochlorate contains 81·7 per cent. of quinine, whilst the sulphate has only 72·8 per cent., and the great difference in the solubility of the two salts is worthy of consideration, the sulphate requiring 800 parts of water, whilst the hydrochlorate is soluble in 34 parts. Hence, the toxic action of the former would be more persistent than that of the latter, since both its absorption and excretion would be delayed. Amongst the recorded cases some present, with other more or less marked symptoms, a sudden and complete bilateral amaurosis, or a very high degree of amblyopia supervening on a deep sleep or an unconscious condition. In such cases the pupils are widely dilated, there is a greater or less degree of deafness, and, speaking generally, the symptoms point to the abolition of the activity of living protoplasm throughout the body. Photopsiæ, and hallucinations of hearing and of the senses of taste and smell may be observed. Fainting due to the enfeebled action of the heart, the beats of which are weak and rare, is common, and other symptoms that have been noted are tremblings, convulsions, great muscular weakness, disturbance of the functions of the brain, pale and livid face, slow respiration, sometimes cardialgia, malaise, vomiting, diarrhœa, dryness of the skin, hiccough, and even gangrene of the skin. Some fatal cases have been placed on record. The doses that have been found to exert a toxic action have been, in one case, 5 grains night and morning for twelve days ; in another, 45 grains at one dose ; and in one instance a negro child, aged 6 years, having taken 26 grains of sulphate of quinine in 48 hours, restlessness and convulsions with complete blindness occurred, which were followed by death.

In the further description of the symptoms of quinine poisoning the ophthalmic symptoms are given at great length, particularly the contraction of the field of vision, the central scotomata and other rarer affections, such as nyctalopia, hemeralopia, anaesthesia of the cornea, turbidity of the vitreous, changes in the tension of the globes, exophthalmos and haemorrhages, each of which is illustrated by cases extracted and condensed from many journals.

In regard to the prognosis, it is stated that the prominent symptoms sometimes disappear as rapidly as they supervene, and the important conclusions drawn from a study of the numerous cases recorded, and from experiments on animals, are that the amaurosis may co-exist with a perfectly normal ophthalmoscopic image; that such alterations as œdema of the retina, and pallor of the papilla may be present and yet be unaccompanied by any observable constriction of the vessels, and, lastly, that notwithstanding constriction of the vessels, the visual powers may return. In regard to treatment, the authors state that many remedies have been tried with but small success, and they believe most benefit may be anticipated from the injection of large quantities of solutions of neutral salts.

Enough has been said to show that Dr. Lewin and Dr. Guillery's volumes should be at hand as works of reference in every ophthalmological library, and that it is the most complete work covering this department of ophthalmological literature that has yet been published.

CORRIGENDUM.

The strength of the alypin solution used in the case described in the last number of *THE OPHTHALMOSCOPE* by Mr. Arthur D. Griffith, was not 2 per cent., as stated in the report, but 2 grains to the ounce.

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[ONE SHILLING

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EXTRACTION OF SENILE CATARACT.

BY

SIR ANDERSON CRITCHETT, C.V.O., M.A., F.R.C.S.E.,

SURGEON-OUCLIST TO HIS MAJESTY THE KING;
CONSULTING OPHTHALMIC SURGEON TO ST. MARY'S HOSPITAL, LONDON.

When the Editor of THE OPHTHALMOSCOPE honoured me with a request that I would place on record some of my personal experiences in connection with this operation, my memory at once dived deeply into the past, and I was able to recall the first occasion when I saw a cataract removed.

It was at Moorfields Hospital, and the operator was Mr. Bowman. He made a large conjunctival flap with a

Sichel's knife, involving fully half of the cornea, and although I was only twelve years of age, I recognized with blended fear and admiration the wonderful manipulative skill which caused the cataract to emerge so gracefully from its resting place. I also remember that the surgical proceeding I had witnessed interfered somewhat seriously with my appetite for dinner.

I was, however, more fascinated than dismayed, and during successive holidays from school and college, I was in fairly constant attendance at the Hospital.

I was thus able to note the changes of procedure from the flap operation to Schuft's method, where spoons were used to extract the lens, that favoured by Mr. Bowman being reminiscent of the prow of an Indian canoe, while my father's bore more resemblance to a shallow slipper.

Later on, the needle knife of von Graefe vanquished all rivals, and remains to this day in undisputed possession. I have often been asked by young ophthalmic surgeons to describe minutely the operations of Sir William Bowman and my father, and I have done my best to satisfy their desire; but it is almost impossible to convey to others one's own vivid impressions of personal characteristics.

I have realised this when I hear old men vainly endeavour to recall the effect produced on them by some great orator or actor, who had fired their young enthusiasm in bygone days. I may, however, venture to say this : the two eminent ophthalmic surgeons differed somewhat in temperament, Sir William Bowman possessing an essentially philosophic mind, with calm, cool judgment, and these qualities were reflected in his operative methods, for he seemed to make his hands carefully accomplish the deliberate and matured plans which had been wrought in his brain. My father, although unrivalled for steadiness in manipulation, possessed, in my opinion, rather more freedom both of wrist and fingers, and evinced perhaps more readiness to make bold trial of new plans. In their results they seemed to achieve an equal measure of success, and when we remember that they worked before the days of antiseptics and cocaine, that in cataract operations they had to choose between the risks of a restive patient without anaesthetic and the dangers involved in the latter from violent sickness ; the splendid work which they accomplished may indeed excite our wonder and our admiration. Throughout their hospital career they attracted to the operating theatre at Moorfields such distinguished visitors as von Graefe, Donders, Snellen, Agnew, Horner, Hansen-Grut, Knapp, and Liebreich ; and whenever I feel inclined in my own person to regret the flight of years I am consoled by the reflection that if

I were younger I should not have seen these two great English operators while they were yet in their prime. In 1867 I accompanied my father to the International Ophthalmic Congress held in Paris. I was then a medical student at Cambridge University and I remember the mingled awe and delight which I experienced when my father presented me to the President—von Graefe, and said that he, as a toil-worn veteran, was venturing to introduce to his colleagues a young untried recruit.

It was, indeed, a memorable Congress, for amongst the Honorary Presidents who supported von Graefe were Sichel père, Giraud-Toulon, and Liebreich, of Paris, Arlt, of Vienna, the elder Pagenstecher, of Wiesbaden, Warlomont, of Brussels, Delgado-Jugo, of Madrid, George Critchett, of London, and that light-shedding genius, Helmholtz.

The Honorary Secretaries were Meyer and de Wecker, of Paris. Till a few days ago the latter well-known ophthalmic surgeon still survived, almost the last of the Old Guard. And now, to our regret, he has passed to join those noble comrades who have gone before ; but whose memory is eternally enshrined in that great brain-built temple of ophthalmology which the last sixty years have reared.

At the Congress there was a discussion on cataract extraction, in which many members expressed their views and related their experiences, and at the finish the witty Dr. Warlomont summed up the situation by saying that everyone seemed to be performing Graefe's operation with his own special modifications, and that, *plus* the latter, each one considered it to be the best operation in the world. The method advocated by my father was to make the puncture and counter-puncture in the cornea, and to complete the section with a small conjunctival flap ; and this is, I believe, the form of operation most generally in use in Great Britain at the present time. At the desire of von Graefe, my father demonstrated his method at Dr. de Wecker's *clinique*, before a distinguished assembly of his colleagues. He operated on both eyes without an anaesthetic, and, to my dismay, I was called forward to assist him. In one sense I was, fortunately, able to do this, for the patient was a highly nervous German woman, and as I at that time spoke her language fluently, I calmed and encouraged her in her native tongue.

All went well, and my father was rewarded by receiving a kiss on each cheek from the President. On the same morning I saw the elder Pagenstecher remove a cataract in its capsule. He made a large section downwards with a Graefe's knife, emerging at the cornea-scleral junction, and performed iridectomy. He then introduced a spoon, exactly resembling a modern coffee

spoon in miniature, and most skilfully accomplished his purpose without rupturing the hyaloid membrane. The operation has always been too difficult of performance and has apparently involved too serious risks to claim many adherents, but, with modifications, it was advocated by Mr. Macnamara and by the late Dr. Andrew, of Shrewsbury, the former operating by a lateral incision, without iridectomy, introduced a spoon through the previously dilated pupil, and, depressing the proximate edge of the lens, turned the latter over with his spoon and removed it in its capsule. Dr. Andrew followed an almost similar plan; but before using the spoon he inserted a small wire hook to free the lens from its attachments. Quite recently the operation has been revived by Major Henry Smith (*Archives of Ophthalmology*, November, 1905*), who accomplished the removal of the cataract in its capsule by the simultaneous use of a small spoon and a strabismus hook; the latter being used to express the lens from below. His statistics show that in his hands the operation has proved very successful.

Early in the seventies a new plan of simple extraction was initiated by Dr. Lebrun, of Brussels. He made his incision entirely in the cornea, the insertion of the needle-knife being opposite to the centre of the pupil, the line of section lying nearly midway between that point and the corneo-scleral margin.

Iridectomy was not used, but after the emergence of the cataract, eserine was employed to induce myosis and to prevent anterior synechia.

The operation was almost invariably performed without an anaesthetic, and the advantages of making an upper or a lower section were respectively advanced by rival advocates. The chief attraction offered by this operation was that it was easy of performance, an advantage which also applies to the very similar method long in use at Leeds, which was fully described by Mr. Pridgin Teale in his Bowman lecture of 1893.

My father gave Lebrun's operation a somewhat extended trial both at Moorfields and in his private practice, but he found that it was too often accompanied by both anterior and posterior synechia, and not infrequently by prolapse of the iris.

He therefore discontinued it, and returned to the combined operation, which he never afterwards abandoned. I may here make passing allusion to the ingenious but too complicated operation of Dr. Bell Taylor, of Nottingham, in which he removed only a sufficient portion of the peripheral margin of the iris to permit the egress of the cataract, and I would also refer to the methods of irrigating the anterior chamber introduced by McKeown, of Belfast, and

*For abstract see p. 151 of the present number of THE OPHTHALMOSCOPE.

Professor Panas, of Paris. No International Congress took place between 1872 and 1888, but in the latter year one was held at Heidelberg, and a very interesting discussion on cataract extraction was most ably opened by the late Prof. Gayet, of Lyons, who advocated simple extraction and quoted excellent results. He was supported by Dr. Knapp, Dr. de Wecker, and several others. I waited in the hope that some more doughty champion would rise to speak on behalf of the combined operation, but at length, as no one took up the challenge, I ventured to essay that task. The arguments I used are doubtless already time-worn, and I will not attempt to repeat them here ; but I concluded with a personal appeal, which was, I think, a perfectly justifiable test. I reminded my distinguished colleagues that a time might possibly come to any of us when the operator must change his place, and become the operatee ; and I asked them to answer conscientiously whether, under these circumstances, they would select on their own behalf an operator who, by a simple extraction, might produce a finer cosmetic, and possibly, though by no means certainly, a better optical result, but who must steer them past the dangerous quicksands of prolapse and synechia, or whether they would not rather entrust themselves to the man who strove to secure the largest measure of useful vision for the greatest number, and who pinned his faith to extraction with iridectomy. I think I am justified in the belief that the majority favoured the view which I advocated ; and on the next day the account of the splendid results of the combined operation in his hands given by Prof. Graefe, of Halle, were received with enthusiasm.

In the following year there was a similar discussion at Leeds in the Ophthalmic Section of the British Medical Association, and the general consensus of feeling was undoubtedly favourable to extraction with iridectomy. I have been much interested in the symposium* upon cataract extraction which has recently been published in *La Clinique Ophtalmologique*, and I propose to conclude this short paper by briefly recording my method of procedure. Like Dr. Hess, I operate on any patient whose sight is too defective to allow him to follow his usual occupation, without considering that question of "ripeness" which in former days was deemed such an important element, but if I anticipate that there will be much soft cortical substance to evacuate I prefer to perform a preliminary iridectomy and to wait for five or six weeks before I remove the lens. A few years ago in the first fervour of antiseptic enthusiasm I had the eye frequently washed with bichloride solution, and on one occasion at St. Mary's Hospital I found that a well-meaning but misguided

* See p. 131 of the present number of THE OPHTHALMOSCOPE.

house-surgeon had used it for the baptism of all my instruments with disastrous results. Later on I employed a solution of chinosol, 1 in 6,000, and I still use it for the final immersion of my hands before operating ; but since I learned the excellent results obtained by Dr. McGillivray, of Dundee, with simple warm saline applications I have used only the last-named, the lids being everted and the eye thoroughly irrigated. I have every reason to be well satisfied with this plan.

For more than twenty years I have operated without a speculum, for I regard the latter as unnecessary, and, under certain conditions, actually harmful, since the wings of the speculum afford a powerful leverage for the strong spasmody effort which has so often ruptured a delicate hyaloid membrane, and wrecked an otherwise promising operation.

When I have the advantage of an experienced assistant, I utilise his fingers for holding the lids gently apart ; and I may here mention in parenthesis that both my assistant and I preface the operation by most careful and prolonged cleansing of the hands, and especially the nails, with hot water and soap, and all my instruments are sterilized in boiling water.

When I have to rely entirely on my own resources I operate by a method which I described in "The Lancet," in May, 1886. After it has been rendered anaesthetic, the eye is steadied with short forceps held between the thumb and the two first fingers, whilst the ring finger is used to elevate the upper lid to such an extent as will enable the operator to make the required section.

The sensitive natural speculum possesses this great advantage that it can recognize the beginning of a spasmody effort on the part of the patient, and can at once give the necessary relaxation, and as the section is nearing its completion, the gradual withdrawal of the finger allows the lids to close gently and without effort. The knife which I use differs somewhat from Graefe's original pattern. The blade begins to broaden immediately below the point, which is central. The back of the knife is bevelled and the blade is slightly rounded ; it does not permit a too rapid escape of aqueous. The shape facilitates the accomplishment of a smooth and rapid section, and the iris is less likely to fall in front of the knife than is the case with more attenuated blades. I make my section at the corneo-scleral margin with a small conjunctival flap, and although I complete three-fourths of the section with the first onward and upward movement, I am always careful to finish it as gently and slowly as possible. I still adhere to the principles of eclecticism which I advocated in a lecture delivered at St. Mary's Hospital in 1883. Thus, in a much enfeebled patient, or in one suffering from diabetes, I should refrain from making my section entirely in the cornea,

and in cases of immature cataract I usually make a peripheral rather than a central incision in the capsule. If a lens be quite mature I usually evacuate it with a tortoiseshell spatula, but should there be much soft cortex I prefer to use my finger and the lower lid, and I persevere till no gray cloud can be seen in the pupil. The glutinous and adhesive lens is that which needs the most careful manipulation, and I often find that this type of cataract can be more safely and easily coaxed to emerge by a gently applied rotatory movement with the finger than by any direct pressure.

I use a dry dressing with light bandage and I protect the eye with the admirable Cartella eye shield, recommended by Mr. Priestley Smith. I begin to use atropin once or twice daily at the end of forty-eight hours, but if there be no pain or swelling of the lids, and no rise of temperature, I am only too content to leave nature undisturbed to accomplish the healing process, and I do not examine the operated eye till the fifth day.

I may venture to claim a rather exceptional experience in the after-treatment of eye-operations, for it includes a large share of my father's practice, in addition to my own, and I am well assured that serious harm results in not a few instances from too early and too eager interference. In the matter of darkening the room I am chiefly guided by the wishes and feelings of my patient. I, as a rule, give a mild narcotic for the first two nights following the operation, to neutralise the restlessness which is usually present.

In glancing through these random reminiscences I recognize with regret that the personal factor is unduly dominant. I can only plead that under the conditions imposed upon me by the editorial request, this was inevitable and unavoidable, but it will not, I trust, be found altogether unpardonable.

I have ventured to write them in the modest hope that they may perhaps possess some slight interest for my colleagues of a younger generation.

EXTRACTION OF CATARACT IN THE CAPSULE.

BY

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One is bound to admire Major Henry Smith's cataract work at Jullundur,¹ the enormous number of successful cases, and the benefit conferred upon many people. His name should

¹ For abstract see p. 151 of the present number of THE OPHTHALMOSCOPE.

be permanently associated with the operation of extraction of the lens in its capsule, because of his having shown (1) the surprisingly slow rate to which the escapes of vitreous may be reduced in the operation, and (2) the noteworthy freedom from iritis as a complication. Ophthalmic surgeons in general, who never perform extraction in the capsule as a routine operation, must admit that it is probably the correct procedure under the conditions obtaining in the Punjab. There the operator attains to an extraordinary degree of skill,² while the pressing demands upon his time and upon the hospital accommodation necessitate an operation which is quickly performed, followed by rapid recovery, and which gives at once a final and satisfactory result. Now, however, the Jullundur practice is being followed elsewhere in India by junior surgeons. One of the latter, Capt. Oxley, writes in the *Indian Medical Gazette*³ for December, 1905, recommending extraction in the capsule even to beginners, although Major Smith considers it "not an operation for the inexperienced."

Under the circumstances it appears advisable to re-state and to re-examine the fundamental objections to the operation as a routine method of treatment. The operation violates the essential conservatism of correct surgery in that it introduces a risk unnecessarily, *i.e.*, for the sake of advantages which can be obtained without risk. We are told that escape of vitreous, which we all fear, occurs under skilled hands, but slightly oftener than in ordinary extraction, and that the quantity lost is nearly always small, and that the accident is therefore negligible. Major Smith's percentage of escapes, between 6 and 7 per cent. given in 1903, and again in 1905, probably closely approximates to the lowest attainable by this method of operating. Capt. Oxley's figures—12 losses in 40 operations—are perhaps a fair index of what the beginner must expect. How do these rates compare with those of ordinary extraction? At the Cowasjee Jehangir Ophthalmic Hospital, Bombay, in the year from December 1st, 1904, to November 30th, 1905, there were 609 extractions, excluding linears. Of these 35 were performed by downward section, in patients who could not fix their eyes steadily downwards. These are placed apart, because I did not realize until quite lately the advisability of substituting a retractor for the lid-speculum in these operations (at least in all cases with the slightest retraction of fornices from scarring). Through using the speculum in the earlier operations there was an extraordinary

² Obviously the question of loss of vitreous depends largely on the behaviour of the patient also. Do the Punjabis exhibit an unusual degree of self-control?

³ For abstract see p. 153 of the present number of THE OPHTHALMOSCOPE

number of vitreous escapes, occurring almost consecutively. Altogether there were 6 losses in the operations. Among the remaining 574 extractions there were 15 escapes, i.e., 2·6%. I think this is about the usual percentage obtained by experienced operators. Six of the fifteen accidents occurred in cases where the lens was expelled in its capsule, either squeezed out by spasm of the orbicularis, or extracted thus because of early escape of vitreous; or because of the lens becoming depressed (once in a diseased eye, with pupillary membrane and very shallow anterior chamber). From five other eyes during the year the lens was intentionally expressed in its (more or less opaque) capsule, without any accident with vitreous. From ten eyes opaque capsule was removed immediately after expulsion of the lens, giving two escapes of vitreous, and once opaque posterior capsule was punctured without accident. There remain but seven vitreous losses, distributed among 552 operations where the capsule was left behind. One of these mishaps was in extracting a lens already dislocated into the anterior chamber. Another occurred in a glaucomatous eye. Two losses are noted as being due to a blunt cystitome pulling tough opaque capsule about instead of cutting it. (Our cystitomes become much blunted through constant sterilizing in the flame of a spirit lamp.) These explanations are given, not with a view of excusing our faults, but with the object of showing what practical benefit may reasonably be expected from the attempt to maintain intact the supporting diaphragm of capsule and zonule. It is thus evident that the lowest attainable percentage of vitreous accident in ordinary extraction is very distinctly lower than in the "complete" operation. In comparing the two operations in inexperienced hands, the difference is likely to be greatly accentuated, judging from Captain Oxley's figures and from my own experience. Not only this, I believe that both the frequency and quantity of loss of vitreous are apt to be a little under-estimated in operations where the capsule is removed. Expulsion of vitreous by spasm of the orbicularis may possibly begin or continue or recur after the eyelids have been closed and after the bandage has been applied, without our knowing of the complication. I can recall two cases in my own practice of late incarceration of firm vitreous in the wound, and one example of the distortion of pupil which is produced by large loss of vitreous.

In examining the visual results of the total 22 eyes from which vitreous was lost, it is noteworthy that three patients were able to see only moving bodies afterwards. Two of these three almost certainly had detachment of the retina. The eyes had

* Possibly all three had retinal displacement. Opacity of vitreous very frequently obscures the view of the fundus in these cases.

a satisfactory appearance, but were useless visually. It is a matter of common observation that this result is to be expected either at the time or later in a proportion of the cases where any considerable quantity of vitreous is lost.⁵ The absence of any mention of loss of sight from this cause in the Jullundur reports certainly would appear to weaken the whole of the statistics of results, necessarily based mainly upon hospital assistants' tests and records.

In our Bombay operations there is a definite percentage of poor and moderate results, due to no fault in the operations, but to pre-existing conditions, such as corneal opacity, occluded pupil, glaucoma, or fundus disease.⁶ It is sometimes very difficult to decide to what extent previous disease of the eye is responsible for a poor result. Under the circumstances anything approaching 99·27% "first class results," as obtained with simple spherical lenses at Jullundur, is absolutely impossible. And classification by visual result alone, without qualification, becomes meaningless and possibly misleading. The visual acuteness obtained at the C.J. Ophthalmic Hospital from extraction of lens and capsule (either the lens in its capsule or the lens and opaque capsule separately) without loss of vitreous, has never been appreciably better than that of the general average of ordinary extractions, as tested at the time of discharge from hospital, usually nine or ten days after operation. Simple spherical lenses are used, and test-dots corresponding with Snellen's types. The patients' pupils at the time are always more or less dilated from the atropine used in the routine after-treatment. The last fifty cases gave these results:—2 cases $\frac{6}{5}$, 5 cases $\frac{6}{6}$, 14 cases 40, 16 cases 60, 12 cases fingers at various distances, 1 case moving bodies (a glaucomatous eye). The surprisingly low average vision is presumably attributable to astigmatism and dilated pupils. Either the average degree of astigmatism, produced by this operation, must be greater than in ordinary extraction, thus counterbalancing the benefit of the clear pupil, or the effect of early after-cataract upon visual acuteness must be remarkably slight, without saying that the visual field must be often much blurred after ordinary extraction, by opaque capsule, cortex, blood-clot, and lymph, but this is a matter of quite secondary importance.

The superiority of the perfectly clear pupils, as regards visual

⁵ We have certainly seen detachment follow operation, although rarely, where no vitreous had been lost, in eyes neither myopic nor obviously unsound previously. We are not prepared therefore to assume that small losses of vitreous are invariably harmless.

One has no right to refuse operation where there appears to be a chance of restoring moderate vision, e.g., in cases where projection of light is impaired, but not greatly so.

acuteness, would be doubtless more evident in comparing later results. This is the main justification of the Jullundur practice. So exceptional is it throughout India for patients to return after discharge from hospital that even in Bombay we have to deal with after-cataract quickly or not at all. Patients whose vision appears to be definitely impaired by after-cataract—apart from purely temporary defects due to blood-clot or cortex—are "needled" ten or eleven days after operation and kept in hospital two or three days longer. When properly safeguarded, this appears to be a proceeding quite devoid of risk. A fairly long single cut is made in the opaque membrane, by means of a sharp and very narrow old Graefe's knife introduced through the sclerotic close to the cornea. The scleral puncture is made subconjunctival by sliding the movable ocular conjunctiva, caught on the point of the knife.

My small experience of extraction of the lens and capsule supports Major Smith's statement with regard to the absence of ordinary iritis after this operation. But really troublesome iritis, iritis which defies treatment, is due almost exclusively to infection, and in this respect we are possibly better off in the ordinary operation. It is well recognised that many of the bad results from operations for after-cataract have been attributable to infective organisms which gained entrance through vitreous incarcerated in the corneal wound. Does infection never enter the eye in this way after cataract extraction? In the last Jullundur series of cases there were nine suppurations, three of which apparently occurred among the nine cases reported of large loss of vitreous.

In the Bombay Hospital both suppurations and severe iritis are extremely rare complications. I formerly reported⁷ 1,172 extractions with only one suppuration, and no iritis or iridocyclitis "severe enough to have resisted energetic treatment." Since returning from leave I have performed over 800 additional extractions, with the result of no suppuration and only one closed pupil from iritis.

To sum up, not a scrap of evidence has been advanced, or is ever likely to be advanced, sufficient to justify removal of transparent capsule, except under very pressing circumstances. The case as regards the average operator remains precisely as it was before, in spite of Major Smith's excellent work. By ordinary extraction, followed if necessary by needling, quite as good results can be got with distinctly less risk, and at the cost merely of a little more troublesome and protracted after-treatment.

⁷ *Practical Details of Cataract Extraction*, 2nd Edition. 1903.

NEEDLING FOR "AFTER-CATARACT" AND ITS ATTENDANT DANGERS.

BY

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To needle the capsule after a successful extraction of the lens for cataract is an operation that is frequently performed, and in a large proportion of cases with gratifying success. It is the fulfilment of the implied, if not expressed, promise on the part of the surgeon, that in undertaking the responsibility of the operation he shall enable the patient to resume, at least to some extent, his ordinary work. Yet, in a certain number of cases, fewer, as a rule, in proportion to the experience of the operator, the result is not that which was anticipated. Events taking place at the time of the operation, such as too small an incision, or a fluid vitreous, or haemorrhage into the anterior chamber—all circumstances leading to incomplete removal of the cortical substance of the lens—or events following the operation, as proliferation of the cells lining the anterior capsule, or the effusion of the products of inflammation of the iris or of iridocyclitis, may seriously interfere with vision. The patient feels that his condition has not undergone material improvement. Whilst he can see light, he has difficulty in avoiding large objects, and is quite incapable of recognising friends. In the majority of cases the opacity occluding the light is plainly visible in the pupil; but in some cases, although the pupil looks perfectly black, considerable impairment of vision is the result of a delicate wrinkling of the posterior capsule or membrane of the vitreous, the effect of which is similar to that of corrugated glass, light entering the eye freely, but so distorted that nothing is seen clearly.

In looking back on the results of a fair number of operations, there are few that I regard with stronger feelings of regret than those in which I have been tempted, notwithstanding certain contra-indications, partly by the solicitation of the patient, and partly till taught the contrary by experience, under the belief that the operation was a trifling one, to needle the capsule after a successful removal of the lens. I am the more disposed to think that others have had the same mishaps, when I remember that so practised an operator as Sir William Bowman proposed, with great advantage to the patient, the employment of two needles instead of one; that Mr. Critchett, de Wecker, and others have devised and recommended the use of various scissors, hooks, canula forceps, and the like, to be introduced through a small

opening in the cornea or sclerotic, made with a broad needle. These efforts to minimise danger, we may reasonably conclude, were the outcome of bitter experience. The course of events is usually that the major operation has been performed successfully, and the patient, accustomed to grope his way, finds himself to be no longer dependent on others and can divide his food and go about the ordinary affairs of life, with comparative comfort, and is more than satisfied. After some weeks, or perhaps, if the patient live in the country, some months, he finds he is unable to read or work, or if a woman, to sew or to stitch, and he returns complaining, especially if he have been a literary man, that the operation has not answered his expectations, and, indeed, that we had promised that with glasses he would be able to read or to resume his avocation. If prudent the surgeon cheers him up, points out to him that steady improvement has taken place which is likely to continue, and quotes cases where almost complete transparency in the media has been regained without further interference. He is dismissed, and we heartily trust that our favourable prognostications may be realized. A few months elapse, and although some improvement is admitted to have taken place, yet there is a tone of dissatisfaction which is considerably intensified if he happen to have met and compared notes (as patients are apt to do) with a friend who has successfully gone through the ordeal at the hands of a colleague, and who flauntingly takes his paper from his pocket, adjusts his spectacles, and proceeds on the spot to read a paragraph for the edification of the man of dim sight. Next morning he pays his surgeon a visit, recounts his experience, and almost demands that "something" should be done. Various conditions may be present that suggest delay—the opacity may consist essentially of soft cortical substance, and be obviously clearing up; the patient may have some general affection, such as diabetes, heart disease, or chronic bronchitis, with violent fits of coughing; these may contra-indicate any interference, and again the prudent surgeon counsels postponement of operation and perhaps tries the effect of a drop of atropine solution. At length, wearied out with the repeated solicitations of the patient, he consents to "clear the pupil." In many cases, no doubt, the results are satisfactory, the tense capsule or membrane of the vitreous, to which some remains of the cortical substance are adherent, splits asunder with a touch of the needle, the segments roll back, good vision is at once obtained, scarcely perceptible inflammation follows, and in a week or ten days both patient and surgeon are jubilant. But, unfortunately, there is a dark side to this bright picture. Sometimes, inexplicably, though a clear pupil is left at the time of the needling, effusion of lymph or

inflammatory products takes place, and the improvement (if any) is only slight and temporary, or it may be found that the membrane is so tough that the needle, either owing to the point becoming blunted in traversing the cornea, or to unusual toughness of the capsule, fails to penetrate it; the surgeon is tempted to press with a little more force against it, when suddenly the attached margin of the capsule gives way, and pretty smart haemorrhage may follow. The impairment of sight is, of course, considerable, and the operator must indeed have command over himself if neither by speech nor act he can persuade the patient that nothing exceptional has occurred. The absorption of the blood is sometimes rapid, but more generally slow, for the eye, it must be remembered (as my lamented colleague, Mr. Vernon, used to say), was originally not healthy, as shown by the supervention of cataract, and its condition is manifestly not improved by the operation for the removal of the lens. Where blood has been effused both operator and patient must, as a rule, look forward to a tedious process of convalescence; and the capsule—and this is an additional annoyance—may be found, after all, to have not materially shifted its position, and, owing to particles of fibrin, leucocytes, and products of inflammatory effusion may be even less transparent than before, and the improvement so much desired has not followed the needling. At this stage the patient sometimes loses confidence in his surgeon, and I have known cases where application has been made to others. Personally, I have always borne in mind a remark, made to me many years ago by the late Mr. Critchett, which has much worldly wisdom in it: "Never, if you can help it," he said, "go into partnership with another man's unsuccessful operation, for you will surely be held responsible for any untoward result." Other conditions that may be set up by needling are acute and chronic iritis and glaucoma, all of which are difficult to treat where they occur after extraction, and even when subdued leave the eye in an unsatisfactory state. I do not propose to consider these affections. I only desire to impress on those who are beginning practice, especially in the country, where one bad result is more discussed than many good ones, that needling is not a trivial operation to be lightly undertaken, but that the conditions present should be carefully considered. Any proceedings that tend to prevent the formation of secondary capsular cataract are of the highest importance in the conduct of the operation of extraction, and are scarcely dwelt upon as fully as they should be in the numerous manuals that are in the hands of students. Hence, the importance of the "toilet of the eye," as it has been termed, after the operation, and great credit must be given to

Mr. Treacher Collins, not only for his numerous and beautifully illustrated contributions to the pathology of the eye, but for the very valuable suggestion in regard to the removal of the anterior capsule in extraction, which were I in practice I should certainly adopt. His mode of procedure is contained in the last number of the *Ophthalmic Hospital Reports.** This seems to me to be one of the most important improvements in the conduct of the operation since the introduction of the Graefe knife, and I would strongly recommend the study of his communication to all ophthalmic surgeons.

REGARDING THE LOSS OF VITREOUS IN THE OPERATION FOR EXTRACTION OF CATARACT.

BY

E. F. DRAKE-BROCKMAN, F.R.C.S.

The revival of the operation for extraction of cataract in its capsule (formerly known as Pagenstecher's operation) and the remarkably favourable results which have lately been reported by some operators, have led me to look more critically into the subject. I have, therefore, referred to my past record of cases, extending over many years, dealt with in this manner, and have contrasted these results with an equal number of extractions by, firstly, the three millimetre flap operation *with iridectomy*, and, secondly, by the three millimetre flap operation *without iridectomy*. I have taken the cases consecutively as they are recorded in my operation registers, and I find the results are as follows :—

(1) *Pagenstecher's Operation.*

Recoveries ...	... { "Good vision" ...	... 194	or	66·21 %
	{ "Fair vision" ...	... 83	"	28·32 %
Failures ...	... ... ...	... 16	"	5·46 %
		—		
Total ...	... ...	... 293		
Loss of Vitreous ...	... ...	... 84	"	28·67 %

(2) *3 Millimetre Flap Extraction with Iridectomy.*

Recoveries ...	... { "Good vision" ...	... 191	or	65·18 %
	{ "Fair vision" ...	... 84	"	28·65 %
Failures ...	... ... ...	... 18	"	6·81 %
		—		
Total ...	... ...	... 293		
Loss of vitreous ...	... ...	... 17	"	5·80 %

(3) *3 Millimetre Flap Extraction without Iridectomy.*

Recoveries ...	... { "Good vision" ...	... 220	or	65·08 %
	{ "Fair vision" ...	... 60	"	20·81 %
Failures ...	... ... ...	... 13	"	4·43 %
		—		
Total ...	... ...	... 293		
Loss of vitreous ...	... ...	... 3	"	1·02 %

* For abstract see page 182 of the present number of *THE OPHTHALMOSCOPE.*

It will be noticed that I performed the first-named operation in 293 cases of cataract, a small number, it may be thought, from which to arrive at a just conclusion as regards its value. The reason for my quoting so small a number is that, after repeated trials of the operation, I found the results so discouraging, when compared with the other two methods, especially as regards the loss of vitreous, I abandoned it in favour of the three millimetre flap operation, either *with* or *without* iridectomy. The high percentage of vitreous loss in the first method of operation might have been due to deficient manipulative dexterity on my part in the expression of the lens, or to other causes. Whatever the cause might have been, I considered the risk of losing the vitreous in so many cases was, more or less, a serious matter as regarded the ultimate results of securing either "good" or "fair" vision, with a promise of *permanency*. For it must be remembered in this connection (1st) that all these were hospital patients; (2nd) that the visual acuity was generally tested within ten days after the operation; and (3rd) that no opportunities, in the majority of cases, offered themselves after a lapse of time for further testing, whether the visual sense continued "good" or "fair," or whether the quality of vision had deteriorated. Some cases, in which loss of the vitreous had occurred in a marked manner, were seen again, after various lapses of time, and distinctly showed further deterioration of sight, amounting, in some cases, to mere perception of light and shade.

I hold, and I believe oculists who have had a wide experience in cataract operations also maintain, that the loss of a *small* quantity of the vitreous body is not of serious importance; but, on the other hand, I as strongly hold that the loss of the vitreous, beyond a certain amount does, as years pass by, cause gradual and marked deterioration of the seeing powers. The perfection of any operation for the removal of cataract, to my mind, consists in securing the smallest disturbance of the structures which are directly concerned in the function of vision, and in order to secure this it is most important to avoid introducing instruments unnecessarily into the eye, to refrain from removal of structures, such as the iris or vitreous body, and not to employ undue pressure on the globe in attempts to remove the lens.

In reviewing the above tables it will be noticed (1) as regards *failures* the highest percentage was experienced in the 3 millimetre flap operation *with* iridectomy, and the smallest percentage in the same operation *without* iridectomy. I therefore almost invariably performed the latter operation, except under special circumstances

(2) As regards the acuteness of vision after operation.

Here again it will be seen that the highest percentage of "good" vision obtained in the 3 millimetre flap operation *without* iridectomy, and the smallest percentage in the 3 millimetre flap operation *with* iridectomy. And here I may mention that I have classified all recoveries of vision ranging from $\frac{6}{7}$ to $\frac{4}{5}$ as "good" vision, and all those ranging from $\frac{6}{18}$ and below as "fair" vision.

(3) In reference to the loss of vitreous, the differences in the percentages are very striking. In the removal of the lens *in its capsule* this accident occurred in 84 out of a total of 293 cases, or in the ratio of 28·67 %; in the three millimetre flap operation *with* iridectomy on 17 occasions, or in the ratio of 5·8 %; and in the three millimetre flap operation *without* iridectomy in three cases, or in the ratio of 1.02 %. I ascribe these differences to the fact that in the first of these operations, in which greater pressure in expressing the lens must be employed, a greater risk of loss of vitreous is involved; that in the second operation, by removal of a segment of the iris, the anterior support to the deeper structures is either weakened or entirely removed; whereas, in the third method, the liability to loss of vitreous is very materially diminished—granting even that more pressure is required—in the endeavours to effect the removal of the lens, than in the second operation.

ON SOME POINTS IN RELATION TO EXTRACTION OF CATARACT.

BY

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The subject of cataract extraction is one which does, and always will, lend itself to discussion. It seems an inexhaustible topic, and one in which there is invariably something to be said both for and against the methods used by different operators. Like some other fascinating pursuits, it is hardly possible to imagine a cataract being removed in such a perfect manner that no improvement could possibly be made upon it. Its discussion, therefore, is of perennial interest, and can never grow really stale. When all surgeons of experience and repute are in agreement as to the best methods of procedure, then, and not till then, will the subject be exhausted.

Considered as a surgical operation, the skill required is perhaps really not so very great, for it chiefly resolves itself into

the operator being able to use his hands with gentleness, and yet at the same time with firmness. He must distinguish a sharp knife from a blunt one before he begins; and it is essential that he should know how to make the knife do its work without the use of force. The unsuccessful operator is one whose hands are heavy, and who has no idea of delicacy of touch. Far rather would I personally trust a gentle operator, whose hand may not be quite steady, than I would one who though he may be as steady as a rock yet knows not what gentleness of touch means. The former will be the successful operator.

Everyone is now so fully convinced as to the necessity of using absolutely sterile instruments, dressings, and lotions, that there is no need to insist upon these points. There is, nevertheless, a weak spot in the procedure, and one which we may well doubt whether it will ever be effectually eliminated. I refer to the practical impossibility of rendering the conjunctival sac absolutely sterile. There is, of course, always a direct communication with the lacrymal sac and the nose, and until we know how to ensure the sterility of these parts as well as of the conjunctival sac itself, it is my belief that occasionally suppuration after an intraocular operation will take place. This untoward accident will serve to remind us, that in spite of all the care and attention we may lavish on external things, there is still one source of error which we have not been able to eliminate. The vastly better results we obtain since we have cut off infection from instruments, etc., show, however, how much we owe to these precautions.

Opinions differ much regarding the best methods of operating, so that it is always interesting to hear the views of other surgeons. In the present communication I shall state what, at the present time, seems to me the method best calculated to yield success in the greater number of cases.

Speaking for myself, I have never yet had the courage to attempt to extract a lens within its capsule, as is so successfully done by Major H. Smith and some few other operators in India, whose experience in a few years would equal or exceed that of many British and Continental surgeons in an entire lifetime. It has, of course, occasionally happened that one has more or less accidentally extracted a lens, capsule and all, and these cases have, as a rule, done well; but this is a very different thing from deliberately attempting to do it in an eye with a healthy and strong suspensory ligament.

To my mind, preliminary iridectomy is, as a rule, superfluous. It subjects the patient to two operations instead of one; and I think that its advantages are more than outweighed by the disadvantages it possesses.

I often wonder whether the merits of extraction with and without iridectomy will ever be settled to the satisfaction of all parties. I very much doubt it. The same uncertainty possibly applies to the merits or demerits of a conjunctival flap. Since it is impossible to be in agreement with everyone, I will simply point out in my further remarks what I consider to be the best way of dealing with cataracts in elderly people who have otherwise healthy eyes.

First of all, a patient must have a cataract in both eyes before I should be induced to extract it from one ; and, of course, nobody would think of operating on both eyes at the same sitting. As I observed before, I am speaking of senile cases, for I admit that occasionally one has to do something for a traumatic cataract when the other eye is healthy ; but with this exception, nothing would induce me to operate upon one eye so long as useful vision remained in the other. What good may be expected to result if such be done ? Usually none, for however successful the operation, and however good the vision obtained, such a person will not be able to use the two eyes together. Nor is the case bettered if glasses be given, inasmuch as the patient is likely to come back with a piece of stamp paper stuck over the other eye, and the statement that he can get on quite well, either without the glasses, or when he covers up the glass which is before the aphakic eye. The only advantage is that he is not quite so blind on the one side as he was before the operation, and this may possibly be useful under certain conditions—such, for example, as when a man is surrounded by machinery and may be caught by it, in motion, if he is unable to see it. Even under those circumstances he is not likely to thank the surgeon for making him wear his glasses.

It is a cause for scientific congratulation that the dread disease, sympathetic ophthalmitis, is not of more frequent occurrence than it is, but what surgeon can afford to ignore it ? I excised an eye twelve years ago for fear of this disease, since it had for some months remained inflamed and painful after an unsuccessful extraction. That person to this day sees fairly well with the other eye so little has it been affected with cataract. Might not this patient have been left with two eyes all this time instead of having to run a serious risk of losing both, to say nothing of the inconvenience and danger of three operations, the first two of which were absolutely unnecessary, and it was the performance of these only, which rendered the third urgent and necessary. Within the last year two patients presented themselves to me who were not so fortunate as the one I have just mentioned. In each of them one eye had been operated upon for cataract. In both of them the lens of the other eye was clear when I first

saw them, but both eyes, treated surgically, had done badly. The first one went away with some treatment for a week, but did not again see me for two months "because the other eye had been so painful." By that time the remaining eye was almost as blind as the one which had been operated upon, and the immediate removal of this one, in which now no sight remained, did nothing towards saving the other, which speedily was reduced to the melancholy condition of "No p.l."

The other patient had been operated upon nine months before I saw him, and he came to hospital with keratitis punctata and early sympathetic disease. The eye that had been operated upon was all but blind, and I at once excised it, but the point about the case was that the other lens was *absolutely clear*. After weeks of treatment, the disease subsided, yet it left the vitreous so full of opacities, together with other signs of the severe cyclitis which had been present, that should the lens ever become opaque, I certainly do not envy the surgeon who may be called upon to extract it.

As regards the actual details of operation which I consider the best adapted to give a good result. I like, first of all, to make a good big incision, so that however large the lens is, it may have plenty of room to come away, and, then, I make a large conjunctival flap. While travelling across the anterior chamber, I dip the point of the knife into the lens capsule, then withdraw it, and pass it across to make my counter-puncture. The objection which is sometimes urged against adopting this method is that the aqueous may be lost. Should this happen, it is due to the fact that the blade of the knife is made to cut up at the same time as it was being pushed forwards across the chamber, a thing that should be carefully avoided. With a little practice, aqueous is seldom, if ever, lost at this stage. The great advantage of taking the capsule with the knife is that the point must be sharp, or it could never have got there. A cystitome is by no means always in this state: and then, again, when the incision is being made there is no blood in the anterior chamber, as there often is after a conjunctival flap has been made, and this is still more likely to be the case after the performance of an iridectomy; it is then impossible to see whether the capsule is properly lacerated or not. After this is done, I at once attempt to extract the lens. In the vast majority of cases, the prick of the capsule is quite large enough to allow the pressure of the lens to complete its rupture, and the cataract comes away without difficulty. If the latter can be removed with the iris still intact, the probability of transparent capsule being brought up and left entangled in the wound is greatly lessened. When the iris is swept back, the capsule goes with it and the wound is left free,

while if the incision is sufficiently peripheral to allow of a conjunctival flap, the danger of an adhesion of the iris is reduced to vanishing point. The flap seals the wound, and the anterior chamber is reformed in the course of a comparatively few minutes.

It does not by any means always happen that the iris will go back, and the pupil become circular, after the lens is removed. After several attempts to replace it, the pupil may still remain drawn up. If it does, a piece of the iris should be at once removed. I never think it worth while to risk a prolapse, although however careful one may be, a prolapse is certain to happen occasionally. It is, of course, cut off as soon as it is seen, and, as a rule, no harm results, while if the iridectomy is done at the time of the extraction, and as soon as it is pretty certain it is not going back well, it is no more difficult to do then than it is before the lens is removed. Should the iris go back well, and healing take place normally, these cases undoubtedly give the best results of any, and they have among their group the greater number of eyes seeing 6/6 with their correction, a fact I brought out some years ago when I carefully examined over 1,500 cases.* I freely admit, however, that should iritis or other complication supervene an iridectomy is an advantage; still, with otherwise healthy eyes one does not now expect to get severe iritis, and, if care is taken, it certainly does not often happen.

This is the procedure which I prefer, and I believe it be, on the whole, the safest that can be adopted.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

INTRACAPSULAR CATARACT EXTRACTION.†

BY

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In the following four cases I have attempted to extract cataract by the intracapsular method. A large corneal incision was made upwards, following closely the corneo-scleral junction, and the knife carried under the conjunctiva, so as to obtain a conjunctival flap. An iridectomy was made, and then by means of two

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curettes, the cataract, included in the lens capsule, was delivered in one mass by pressure and counter-pressure in the usual manner.

Case I.—P. M.—, male, aged 28 years, was admitted to the Glasgow Eye Infirmary on 24th June, 1904, with cataract. On the 29th June the cataract was removed by the above method without rupturing the lens capsule. The ease with which the lens was delivered was striking—there was no escape of vitreous, and a black pupil was obtained. On the following day the eye was dressed, the wound had healed, and the anterior chamber reformed. Subsequent recovery was uninterrupted. On the 11th July the acuteness of vision was noted as at least $\frac{1}{18}$, but the patient was illiterate, and further examination with the ophthalmoscope revealed old choroidal mischief.

Case II.—M. S.—, female, aged 65 years, was admitted to the Glasgow Eye Infirmary on 28th June, 1904, with cataract in her right eye. On the 6th July the cataract was removed as in the first case, and without escape of vitreous. On the following day, the eye was found to be quiet, the wound healed, and the anterior chamber reformed, but the pupil was drawn slightly upwards. Two days later the patient having knocked her eye, as was supposed, there was noticed a small subconjunctival prolapse of vitreous. The nature of this prolapse indicates the great value of the conjunctival flap in cataract extraction. By the 20th July the prolapsed vitreous had all but disappeared, and on the 21st the patient was dismissed as "well."

Case III.—R. McC.—, male, aged 50 years, was admitted to the Glasgow Eye Infirmary on 28th October, 1904, with cataract of the right eye. On the 2nd November an attempt was made to extract the cataract as in the previous cases. The incision, however, proved to be not wide enough, and the lens was caught in the wound. As too free manipulation tends to cause escape of vitreous, and any attempt to enlarge the wound would probably have ruptured the capsule, the capsule was simply incised and the cataract delivered in the usual manner and without escape of vitreous. By the following day the wound had healed and the anterior chamber reformed. The patient was dismissed "well" on the 18th November.

Case IV.—J. C.—, female, aged 76 years, was admitted to the Glasgow Eye Infirmary on the 24th February, 1905, with cataract of the right eye. On 1st March a superior extraction was performed. The iris got partly in front of the knife and prolapsed at the wound. An iridectomy having been performed, an attempt was made to remove the lens in its capsule. The lens came forward easily and protruded partially through the wound, but as the vitreous also began to prolapse

and a vectis was not at hand, the capsule was incised and the cataract delivered as in the previous case, but with considerable loss of vitreous. Atropine was used early, and nine days later slight iritis was noted. By the 21st the eye was quiet and there was no pain. Seven days later the patient was dismissed "well."

Remarks.—It may be objected that four cases are too few to found an opinion upon, but they show well the advantages and difficulties of the operation. In the first, an excellent result from an operative point of view was obtained ; in the second, the advantage of a conjunctival flap was well brought out, since the prolapsed vitreous was not exposed to infection and was readily absorbed ; in the third, the necessity for a free and wide incision was shown ; and in the fourth, the danger of early prolapse of vitreous when the suspensory ligament is ruptured, as it must needs be in this operation, was brought into evidence. The great advantage of the operation is, of course, the absence of any need for further interference with the eye, so far as "needling" is concerned. In selected cases no doubt excellent results may be obtained by this method, but the ordinary combined operation appears to be safer for general use, especially in comparatively inexperienced hands.

CATARACT EXTRACTION.

(Sight results.)

BY

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The following case has some points of interest. The patient Mrs. C., 55 years of age, came to me about her eyes in September, 1905. Vision at that time was :—R., fingers dimly seen at one foot ; L.—23 D. = 6/24.

The patient had been wearing glasses 21 years, the last time having been fitted with lenses by an optician, who gave her R.—16 D. and L.—18 D. An ophthalmoscopic examination showed a fully-developed cataract in the right eye, and a partially developed one in the left. The fundus of the left eye presented marked and extensive evidences of thinning of the choroid with choroidal atrophy, and pronounced pigmentation below the disc and towards the macula.

The patient was kept under observation for a period of between two and three years, at which time the left lens had

become sufficiently opaque to call for operation. An operation was performed on both eyes, with an interval of four months between each cataract extraction. Several months afterwards, when the eyes had settled down to a permanent condition, the vision was :—

R.=6/60 - 4 D. \bigcirc —1. D. cyl. axis 45° = 6/18.

L.=6/24 - 0.50 D. \bigcirc —1. D. cyl. axis 60° = 6/18.

An ophthalmoscopic examination of the right eye after the extraction showed the same general fundus features as the left.

Remarks.—There are a number of interesting things in connection with this case, which might be expected in a myopia of this degree. All these, however, are set aside to emphasize one particular point. The patient reads Snellen or Jaeger type as small as No. 2, using the right eye, and without any lens, at a distance of about 12 inches, and is able to read the ordinary newspaper print without difficulty and without using glasses, with the right eye, of course. The left eye, without a lens, also possesses under the circumstances of a damaged fundus, fairly good distant vision $\frac{3}{4}$. We have here a patient who after the removal of both lenses is able to dispense fairly well with a glass of any kind, either for distance or close quarters, simply by using one eye to the exclusion of the other. The patient would dispense with glasses entirely were it not contrary to advice. For obvious reasons, I prescribed a reading glass as follows :—

R.—1. Cyl. axis 45°, down and out.

L.+3.50 D.—1. Cyl. axis 60°, down and in.

"Bifocals" were ordered for street purposes, a form of spectacle which in this particular instance was worn with great comfort and satisfaction. It will be noticed the bifocals were made based upon the figures :—

R.—4 D. \bigcirc —1. Cyl. axis 45°.
L.—0.50 D. \bigcirc —1. Cyl. axis 60°. } + 4 D.S.

making a spectacle of light weight. Theoretically, it is quite possible that cases of this kind, in which after cataract extraction the patient is able to see to advantage without glasses, may occur; practically, they must be more or less of a rarity. For this reason the present case is reported.

A SYMPOSIUM UPON CATARACT EXTRACTION.

Comment nos maîtres opèrent aujourd'hui la cataracte.

La Clinique Ophthalmologique, 25 novembre, 10 décembre, 25 décembre, 1905, and janvier 10 and 25, 1906.

Several recent numbers of *La Clinique Ophthalmologique* have been devoted to a symposium, in which the Editor, Dr. A. Darier, has collected various opinions with regard to extraction of cataract from eminent ophthalmic surgeons, mostly of French nationality. They may be abstracted as under :—

1. **Hess's** (Würzburg) views (abstracted from Volume VI of the new edition of the Graefe-Saemisch *Handbuch der Gesamten Augenheilkunde*) occupy the first number. Hess operates upon any patient whose sight is too defective to allow him to follow his usual occupation, irrespective of the "ripeness" or otherwise of the cataract. The night before operation, the eyes are washed with sublimate, 1 : 2,000, and covered with a wire mask, which fulfils the dual function of preventing contamination and of allowing secretions to escape. The edges of the eyelids, moreover, are treated with sublimate-vaseline, 1 : 1,000. The lashes are not clipped or epilated. During the actual operation, sterile solutions are alone employed. Dark rooms are condemned. Hess regards confinement to bed for twenty-four hours after operation as useful but not indispensable. The dressings are renewed daily, and consist of sublimate ointment (1 : 1,000) applied to the eye, and kept in place by a metallic shield, convex, provided with a central perforation, and kept in position for the first day by means of sparadrap and a bandage. Average stay in hospital fourteen days. With regard to the operation itself, Hess's incision, made with a Graefe knife, involves two-fifths of the circumference of the cornea; dissection of the capsule is carried out with cutting forceps, and the usual iridectomy is replaced by removal of a piece of iris from the base, in a way similar to that recommended by Pflüger. Prolapse of the iris, should such occur, must be reduced at once, and in case of recurrence, must be excised, and protective conjunctival sutures inserted. Hess employs in all cataract operations a binocular *loupe* with electric lighting. Hess considers carefully the somewhat important practical question of treating as out-patients those who have been operated upon for senile cataract. He admits that many such cases do well, but he also recognises the heavy responsibility that rests upon the shoulders of a surgeon who allows patients to go home. The Editor, Dr. **A. Darier**, however, appears to have few doubts

upon the matter. Since 1888 he has treated almost as many of his cataract cases outside as inside the *clinique*, although in such cases he always applies the dressings with great care, and never permits the patients to leave until an hour has elapsed since the extraction, so as to allow the anterior chamber time to re-form. The patients return for dressing the next day or the second day after the operation. The results, according to Darier's experience, do not differ in the two classes of case. In brief, Darier sees no objection to the out-door management of cataract, provided the patients desire to go home and are intelligent enough to apprehend the necessity for care.

2. **de Wecker** (Paris) disinfects the cilia by means of wool soaked in 1% mercury cyanide, sterilises instruments in the autoclave and then places them in mercury cyanide (1 : 1,000). The section involves a little less than one-half the circumference of the cornea. Iridectomy is done only exceptionally—"For a simple cataract," says de Wecker, "a simple extraction." The forceps-cystitome is employed only when patients are docile, and in other cases the ordinary cystitome is preferred. Much care is taken to expel lens-remains. Dressings are of wool, faced with tarlatane and fixed by means of collodion. The dressing is retained for five days. de Wecker attaches importance to dry dressings, and to the avoidance of the use of lotions after operation, unless secretion be present.

3. **de Lapersonne** (Paris) prepares patients for operation by treating the eyelids and the conjunctiva for two or three days with such antiseptics as argyrol, collargol, and mercury cyanide; by applying for twenty-four hours prior to operation a "test dressing"; and by ablating the lacrymal sac when dacryocystitis is present. Anæsthesia is secured with using cocaine and stovaine turn by turn. Instruments are sterilised by dry heat, and used from sterile water. The field of operation is illuminated by the electric photophore. For the last two years de Lapersonne has always made a small iridectomy or sphincterectomy, involving scarcely more than the small circle of the iris. In other words, he has now abandoned so-called "simple extraction," after having practised that operation for more than fifteen years. In certain cases de Lapersonne performs a preliminary iridectomy, a fortnight or three weeks before the extraction. Discission is done with the cystitome or with Landolt's knife (*serpette*); Tersen's capsular forceps is always kept in readiness. The cataract is removed in nearly every case by digital pressure. Great attention is paid to the "toilette" of the wound. Occlusive bandages are changed every day. The eye is examined on the third day. The eye which has been operated on is kept bandaged up for from eight to twelve days. When

the anterior chamber does not reform, or when the lips of the wound tend to gape, de Lapersonne recommends slight cauterisation with silver nitrate. With regard to the treatment of secondary cataract, posterior discussion is performed twelve to fifteen days after extraction, if the soft material encumbering the pupillary field appears likely to entail fibrous degeneration of the posterior capsule. Ordinary cases are operated on in the fourth or sixth month by discussion with Knapp's knife-needle or Landolt's instrument (*serpette*). In suitable cases the capsular sac is extracted. When marked adhesions exist, irido-capsulotomy is the best operation.

4. **Trousseau** (Paris) reduces his armamentarium to a minimum, and employs, in fact, a Graefe knife only in the extraction of cataract. This surgeon separates the eyelids and fixes the eyeball by means of his finger and thumb. He makes an upward section of the cornea with the knife, and, in doing so, divides the capsule of the lens. Next, the upper lid alone is raised, and the lens expressed with the back of the knife applied to the lower part of the cornea. Now and then expulsion is aided by slight pressure exercised upon the globe through the border of the upper lid. A dry dressing is applied, and atropine is instilled on the third day, when the eye is examined for the first time. Patients leave the hospital on the sixth day. Trousseau has had to deplore neither a single accident during operation nor a single consecutive suppuration. Hernia of the iris was observed in scarcely 6 % of his cases, while in 2 % only was there iritis.

5. **Landolt** (Paris) advocates careful examination, local and general, of every patient with "ripe" senile cataract. Such general conditions as diabetes, albuminuria, asthma, or chronic bronchitis, when present, demand particular precautions. The night before operation a bath is given, and the skin of the eyelids and face is washed with soap; the conjunctiva is rinsed with warm sterile saline solution; and, lastly, attention is paid to the state of the patient's feet. Local anaesthesia is obtained by 4 per cent. cocaine applied five times during the twenty-five minutes immediately before operation. The skin of the eyelids and neighbouring parts is then washed carefully with soap and sublimate, 1 : 5,000. Finally, the eyes are covered with aseptic gauze, retained in place by a knitted bandage. When the patient is upon the table the lids are everted, and the parts flushed with a warm sterile saline solution, 9 : 1,000. Landolt prefers ivory instead of metal handles to his instruments, which he sterilizes by boiling for fifteen minutes in distilled water, containing sodium carbonate. The hands of surgeon and assistants, after prolonged washing in hot water, are brushed with alcohol for one to two minutes, and then immersed in

sublimate, 1 : 1,000. They are dried by putting on sterilized linen gloves, worn until the moment instruments are actually handled. Landolt employs his own model speculum to separate the patient's eyelids. The corneal incision, made with a Graefe knife, is always very large, and a conjunctival flap, of which the height does not exceed 3 mm., is made. A large iridectomy forms part of the operation. The cystitome employed by Landolt was that described in the *Archives d'Ophtalmologie*, 1885, p. 52. The lens is extruded by digital pressure, the speculum having first been removed. After careful reposition of the angles of the iris, a drop of 4% (*sic*) atropine is placed in the eye, and the dressing applied. The latter consists of absorbent wool and a mask of trellised iron wire, kept in place by strings. The dressing is changed at the end of forty-eight hours, and an opportunity is then taken of examining the eye, in order to ascertain if the anterior chamber is reformed. Atropine is applied. On the seventh day after operation dressings are replaced by smoked glasses.

6. According to **Galezowski** (Paris), the essential condition of a good extraction lies in the precise diagnosis of the cause, nature, and consistence of the cataract. The eye is anaesthetised by cocaine 5%, the lids are separated by the author's speculum, and the globe is drawn downwards by means of fixation forceps. The section, made by means of a small special knife, involves the upper third of the cornea, terminates 2 mm. above the limbus, and is of semi-elliptical shape. The capsule is next incised. The iris is then seized with forceps, and a piece cut away by the assistant. The speculum is removed, the forceps laid aside, and the lens expelled by see-saw movements of the lower lid aided by a curette placed above the upper edge of the wound. The anterior chamber is cleared and the iris replaced by means of a curette. Vitreous is lost in 4% or 5% of Galezowski's cases. The operation once completed, eserine is dropped into the eye, the lids of which are dressed with aseptic taffetas,* absorbent wool, and a sterilised bandage. For the first twelve hours the patient bathes his eye every fifteen or twenty minutes with a solution containing naphthol, 01 ct.; carbolic acid, 10 ct.; distilled water, 1,000 gr., a process repeated once every thirty or sixty minutes until cure is complete. In Galezowski's practice, secondary cataracts are stated to be rare.

7. The brilliance of cataract operations, **Abadie** (Paris) points out, has lost much of its importance since the introduction of antisepsis and of cocaine. Nowadays the aim of every surgeon is to prevent infection of the wound. In the pre-antiseptic era Abadie had at least 5% of suppurations after his operations for cataract, whereas in the last fifteen years, during which careful

*To be obtained from Pharmacie Mialhe, 8, Rue Favart, Paris, France.

aseptic precautions have been adopted, four instances only of suppuration amongst upwards of 1,000 extractions have occurred. It is of interest to note that the source of infection was traced in each of these four cases. Thus, in the first it was due to defect in the hot air steriliser ; in the second and third cases, which occurred in the course of one week, to infection from influenza, from which Abadie was suffering at the time ; and in the fourth case to infection from an eruption on the skin of the patient's eyelids. Abadie maintains strongly that suppuration is the outcome of infection of the operation wound, and is not due to general constitutional defects, as diabetes, on the part of the patient. Although the performance or otherwise of iridectomy as part of operation for cataract now possesses a merely secondary importance, yet Abadie believes that a correctly executed iridectomy entails neither æsthetic nor optical disadvantages. Iridectomy, besides, avoids risks of the iris prolapsing, and facilitates the evacuation of cortical masses in unripe cataract. Again, in case secondary operations are called for, the gap in the iris resulting from iridectomy renders surgical interference easier. On the other hand, in "ripe" cataract, iridectomy may be dispensed with, and prolapse be prevented by the application of 1% pilocarpine to the eye when the operation is completed. In short, Abadie holds that as regards this vexed question one should remain eclectic, practising iridectomy or not according to the individual conditions presented by the patient.

8. **Badal's** (Bordeaux) patients are prepared by a hot bath and careful cleansing of the skin of the face and eyelids the night before operation. Conjunctival catarrh is treated for three or four days by weak solutions of zinc sulphate or silver nitrate ; the lacrymal sac is extirpated in case persistent disease is present. Instruments (kept exclusively for cataract cases) are boiled for ten minutes in a solution of sodium carbonate, placed in a sterilised towel to cool, and used dry. Anæsthesia is obtained by 2·5% cocaine, kept in glass capsules until the moment of use. The patient's hair and face are covered with sterilised cloths, which leave only the eye and the nose free. In principle, Badal is a partisan of iridectomy, although exceptionally he performs the "simple operation," or even extracts the lens in its capsule. Noyes' blepharostat is used. Before incising the cornea, Badal marks with small forceps the height of the flap, so that the latter shall be precisely placed even if the patient moves his eye during the operation. Moreover, it allows the surgeon to appreciate the degree of local anæsthesia. The section is made by inserting the knife 2mm. above the horizontal meridian of the cornea on the outer side, and 0·5mm. behind the limbus, and by making

the counter-puncture at a corresponding spot on the other side of the globe. Badal does not make a conjunctival flap. The iridectomy is performed in two stages—that is to say, by cutting first one angle and then the other, the eyeball being meanwhile pressed downwards by the blades of the scissors. The speculum is next removed, and the upper lid raised with the finger. The anterior capsule is incised with the cystitome in such a way as to form a small triangle, apex downwards. The lens is expelled by pressure exercised above the scleral wound with a special spoon (*pelle*), and upon the cornea with an ordinary curette. The “toilette” of the pupillary field is carried out with great care. An occlusive aseptic dressing is applied for six or eight days, and then replaced by a simpler arrangement. A fortnight represents the average stay in hospital.

9. **Rollet** (Lyons) prepares his patients over-night in much the usual way. He applies a “test dressing,” and if abnormal secretion be found, invariably postpones the operation. In cases of dacryocystitis, he extirpates the lacrymal sac. Metallic instruments are alone employed. They are sterilised for two or three minutes in a vessel containing purified olive oil, boiling at 150° C. They are then placed in boiling water. Rollet, who adopts the “simple operation,” never uses a speculum. The operation completed, a couple of drops of methylene blue (1 : 1,000) are placed in the eye, and the lids covered with dry discs of gauze. A binocular bandage is kept in place for four days, when a monocular is substituted. Between November 3rd, 1904, and a corresponding date in 1905, Rollet has one suppuration amongst 321 extractions, and 4% to 6% of prolapses.

10. **Lagrange** (Bordeaux) advocates minute attention to the local and general condition of the patient suffering from cataract. Purgative night before operation. “Test dressing.” Anæsthesia obtained by applying—first, several drops of adrenaline (1 : 2,000); next, holocaine, 1%; and, lastly, cocaine, 1%. Whilst these various medicaments are being used, the skin of the eyelids, etc., is washed with soap, and the conjunctival culs-de-sac are flushed with weak antiseptic fluid, as boric lotion or cyanide, 1 : 6,000, with the aid of a special *laveur*. Any cilia that may be loose are pulled out between the surgeon’s finger and thumb. The operator’s hands, after thorough cleansing with soap and hot water, are immersed in alcohol and then in mercury cyanide. Sterilized blouses are worn by the surgeon and his assistants. The patient’s head is enveloped in sterilised towels. All collyria are preserved in hermetically sealed glass capsules. Everything intended to touch the patients, as dressings, sponges, and so forth, is sterilised by heat in white metal receptacles, which are kept closed until the moment when

such things are needed. Instruments are disinfected in the stove. A small vessel filled with boiling water stands upon the operating table, so that any instrument may be purified at a moment's notice. Lagrange performs a "simple" operation in about 10% of his cases. He dispenses with iridectomy when the cataract is hard and "ripe," and when the iris is very contractile. The puncture is made on the temporal side of the globe at a spot about 2 mm. above the horizontal meridian of the cornea and 0.5 mm. behind the sclero-corneal margin. The counter-puncture is made at a corresponding spot on the nasal side of the eyeball. The section ends in the limbus above when the combined extraction is undertaken and a little below that point in simple extraction. The iridectomy is of average size. After removal of the speculum, Fuchs's capsular forceps are employed to remove as big a piece as possible of the capsule. When the capsule is too hard to be dealt with in this way, a crucial incision is made in it with the ordinary cystitome. The lens is removed by pressure. When difficulty is experienced in getting rid of cortical remains, Lagrange washes out the anterior chamber by means of Chibret's flow and return syringe, filled with artificial aqueous humour. The electric light is employed in order to make sure that the anterior chamber is free from débris. Eserine is usually dropped into the eye, whether iridectomy has or has not formed part of the operation. If there is any suspicion of lacrymal mischief, iodoform is sprinkled over the wound and the puncta lacrymalia. Both eyes are covered with gauze moistened with boric lotion, kept in place by wool and a lightly-applied crape bandage. For two days liquid food is given, and then the patient is allowed to leave his bed, the eye that has been operated on being covered with Snellen's shield and strips of sparadrap. After "simple" extraction, if the pupil looks black, eserine is instilled at the first two dressings, and then replaced by atropine. Atropine is alone used when the pupil is not so black as it should be. After "combined" extraction, atropine is applied from the first dressing.

II. **Snellen** (Utrecht) regards diabetes and albuminuria not as absolute contra-indications to operation for cataract, but rather as conditions calling for a proper *régime*, and as suggesting but a brief stay in bed. Chronic bronchitis is treated with the liqueur ammoniacale anisée, and liability to attacks of sneezing, with wool soaked in cocaine placed in the nares, and constipation with the usual remedies. In those with arterio-sclerosis, haemorrhage, and in rheumatic subjects, iritis is to be apprehended. The night prior to operation, the eyes are cleansed in the usual way, and a "trial dressing" of sublimate (1 : 5,000) is applied. Instruments are cleansed by boiling, are rubbed with

alcohol, and are then arranged in the order in which they will be used. The surgeon's hands are brushed and washed—first, with soap, and, then, with sublimate (1 : 1,000). The eyelids and conjunctiva having been washed anew, the operation is commenced. A speculum is not employed, the lids being held apart either by the fingers of the assistant or by means of Pellier's elevators. The corneal section, made with a Graefe knife, had better, in Snellen's opinion, be too large than too small. It should involve about one-half the circumference of the cornea. Snellen attaches importance to the making of a small conjunctival flap. The capsule is incised or excised, according to circumstances. Only when capsule is adherent to the cataract is the latter extracted, after iridectomy, in its capsule. In other cases, iridectomy forms no integral part of the operation as practised by Snellen. Cortical remains are sought by the aid of focal illumination, and, when found, are usually removed by digital massage. Daviel's curette is sometimes employed for the purpose. *Lavage* of the anterior chamber, in the author's opinion, is dangerous. Finally, when the cortical masses resist the various measures mentioned above, their removal may be facilitated by the performance of an iridectomy. The eye that has been operated on is covered with sublimate wool, gutta-percha tissue, and the well-known aluminium shield devised by Snellen several years ago. Dressings removed twice a day. Patient allowed to sit up the day after operation. When the wound is well closed, the eye is merely protected by means of a transparent celluloid shield. Snellen advocates early discussion, say, a fortnight after extraction—that is, before the capsule has had time to become resistant. Spectacles at the end of three weeks, and careful correction of all astigmatism.

12. **Mayweg** (the Hague) condemns artificial maturation, and contents himself with preliminary iridectomy four to six weeks before extraction when the cataract is not "ripe." The sac is extirpated when the lacrymal passages are impermeable. The day before operation the patient bathes and puts on clean linen and clothes. The cilia are cut close, and the eyelids and neighbouring parts washed—first, with benzine, and, then, with sublimate soap. On the day of operation the patient is clad in aseptic material, the conjunctiva is irrigated with mercury cyanide, 0.3%, and a gauze veil is placed over the nose, mouth, and beard of the surgeon, whose hands are most carefully disinfected. Cocaine, 4%, is instilled into the conjunctival sac three times in ten minutes; the sac is then washed with sterile saline solution; and, lastly, a drop of adrenaline is applied to the eye. Mayweg, as a rule, employs a speculum, and adopts a linear incision, a conjunctival flap, and an iridectomy. When

dealing with extremely nervous subjects, he makes his corneal section downwards. The iridectomy is rendered painless by a drop of cocaine, 1%, placed in the anterior chamber. The capsule is torn by means of a simple cystitome. The lens is expelled by pressure exercised upon the two lips of the wound by means of spatulas. Atropine is dropped into the eye and iodoform applied to the wound. Both eyes are bandaged. A narcotic, as chloral or veronal, is administered. Dressing changed every twenty-four hours, and abandoned, on the average, on the fifth day. Discussion, if necessary, practised on the tenth day. Patient leaves the hospital in a fortnight. Spectacles prescribed in the sixth week.

13. **v. Michel** (Berlin) employs a speculum, makes an upward section involving one-third of the cornea and a conjunctival flap 3mm. to 4mm. in height, and performs iridectomy. Discussion with cystitome, so that the capsule is torn in three directions. Atropine. Binocular dressing for twenty-four hours after operation. Patient discharged on seventh or eighth day. The patient conducts himself as though he had not been operated on; coming and going in full light, and eating, drinking, and smoking at table with the other inmates of the hospital.

14. **Pagenstecher** (Wiesbaden) publishes a series of aphorisms, from which the following may be abstracted. Never operate upon a patient who manifests signs of fever, or whose other eye shows traces of inflammation. If the second eye is phthisical or painful on pressure, enucleate it or resect the optic nerve. Operate only upon mature cataract, and in other cases mature by massage through the cornea, after preliminary iridectomy. A conjunctival flap should be made, and iridectomy should almost always form part of the operation for extraction. Rapid reconstitution of the anterior chamber is the best safeguard against prolapse of the iris, and that is the main reason why Pagenstecher recommends a conjunctival flap. Although the "simple" operation has many advantages, yet it also has its drawbacks in the shape of prolapse (8% to 10% even in the hands of the best operators), inflammatory accidents, sympathetic ophthalmitis, and difficulty in removing cortical masses. This leads Pagenstecher to advise beginners always to practise iridectomy as part of the operation for extraction. *Lavage* of the anterior chamber should be avoided. Discussion through the sclero-corneal region should be done when there no longer exists any inflammatory reaction, but as soon as possible. As regards dressing, Pagenstecher employs compresses of gauze, impregnated with a mixture of ichthylol and liquid paraffin, and fixed in place by wool and a metallic framework.—SYDNEY STEPHENSON.

(To be concluded.)

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—THE STATISTICS OF CATARACT.

Gerok, M.—Clinical and statistical contribution to the knowledge of uncomplicated cataract. (*Klinisch-statistischer Beitrag zur Lehre der uncomplicierten Stare.*) *Beiträge zur Augenheilkunde*, 56 Heft, Mai, 1903.

Gerok's paper is based on the material of the eye clinic of Tübingen, where cataract forms 6·9 per cent. of all ocular disorders. The conclusions to which Gerok comes are as follows.—There is no marked difference with regard to sex, and no special predisposition of either eye to cataract. Most eyes affected are emmetropic or slightly ametropic, a fact which rather tells against Schoen's well-known theory. The cataract morbidity increases up to 80 years of age, and then decreases for unknown reasons. Gerok's figures with regard to this point deserve quotation, as he has taken the trouble to reduce the proportion to their respective shares of the total proportion of Wurtemberg. The relative cataract morbidity for the first decade of life being put as 1, it is :—

Between 11 years and 20 years	...	0·17
" 21 "	" 30 "	4·3
" 31 "	" 40 "	8·0
" 41 "	" 50 "	26·6
" 51 "	" 60 "	112
" 61 "	" 70 "	220
" 71 "	" 80 "	224
" 81 "	— "	141

Heredity in senile cataract is found in 4·9 per cent.; in juvenile and congenital cataract in 14·2 per cent. Senile cataract, if inherited, shows no tendency to appear earlier in life; congenital forms appear, if at all, usually in the same form in the progeny. Occupation forms no clear predisposition, neither does unusual strain of accommodation. Special etiology is mentioned but rarely, but feverish affections with consecutive debility and affections of the heart and the vascular system, seem to favour the development and the more rapid progress of cataract.

R. GRUBER.

II.—THE SURGICAL TREATMENT OF LAMELLAR CATARACT.

Ask, Fritz.—*On the surgical treatment of lamellar cataract. (Zur operativen Behandlung des Schichtstars.) Klin. Monatsbl. f. Augenheilkunde, 1905, Bd. I., p. 480.*

Sight may be improved in lamellar cataract, as everybody knows, by two different surgical operations: first, by iridectomy or iridotomy, and, secondly, by removal of the cataractous lens. Each of these operations has its definite indications, although among individual surgeons there is a difference of opinion as to which should be adopted in a given case.

Vossius (*Lehrbuch der Augenheilkunde*, 1892) advises a narrow iridectomy when the opacity is large and when sight can be improved by means of atropine and the stenopæic slit. On the other hand, discussion can be carried out only when the pupil dilates widely to atropine. Fuchs (*Lehrbuch der Augenheilkunde*, 1903), Michel (*Lehrbuch der Augenheilkunde*, 1890), and others, who mostly favour discussion, prefer iridectomy when the lenticular opacity seems likely to remain stationary and when sight can be markedly improved by dilatation of the pupil. Silex (*Kompendium der Augenheilkunde*, 1902) regards iridectomy as of little use as regards sight, and advises discussion. Sir Anderson Critchett (*Trans. Ophthalmological Society*, Vol. XX, 1900, p. 230) is an advocate of iridectomy in suitable cases of lamellar cataract. Nettleship (*Ibidem*, p. 231) is of opinion that iridectomy should be performed in exceptional cases only. Bähr (*Centralbl. f. prak. Augenheilk.*, XXIV) sees in removal of the lens the sovereign remedy for lamellar cataract. Grut (*Klin. Monatsbl. f. Augenheilkunde*, XLII, 1) rejects iridectomy as a means of treating this form of cataract.

With a view to reach a definite opinion upon the vexed question of iridectomy *v.* discussion in cases of lamellar cataract, Ask has examined the records of Professor Schoeler's eye clinic in Berlin. It seems that Schoeler performs iridectomy when sight for near and distant objects can be bettered by dilating the pupil, correcting associated errors of refraction, and employing a stenopæic slit. The figures obtained by Ask in the course of his enquiry are as under:—since the year 1897 the near vision was improved in 37 of the 46 cases where iridectomy was performed. As regards distant vision, the last-named remained *in statu quo* or underwent improvement in 37 among 42 cases of iridectomy for lamellar cataract, while it showed some deterioration in five cases. In reference to the last, however, the sight was tested once only and not long after operation, so that some of these patients, who were mostly

of tender age, may have improved later. Ask reports in detail seven (7) cases of lamellar cataract in which iridectomy was performed upon one eye and discussion upon the other. In every instance, save one, whichever operation was adopted, the sight was improved. In four of the cases the results as regards sight did not differ in the two eyes, although treated by different methods. In one case the eye on which iridectomy had been performed showed the worst visual result. But in every case it is important to note that the eye that had been subjected to iridectomy was used for near work, even although the other eye might be visually the better of the two. Complete removal of the lens, without doubt, yields the best possible vision. In lamellar cataract, myopia of medium degree (usually below 5 D) is the error of refraction most commonly met with. After iridectomy glasses may often be dispensed with, but after removal of the lens strong glasses both for near and distant sight are necessary, a thing likely to be inconvenient in many occupations, such as domestic service, and so forth. Moreover, discussion and other operations for removal of the lens are much more dangerous and likely to be complicated than iridectomy, and must often be followed by secondary operations for after-cataract. Iridectomy, on the contrary, is done at one sitting, and is practically devoid of danger. Under what circumstances, then, should the lens be removed in cases of lamellar cataract? Ask replies that it should be undertaken when the cataract shows signs of progression, or when the amount of myopia associated with the condition exceeds 14 D. In some cases with high myopia (>8 D. to 10 D.) Ask has removed the lens from one eye, and performed iridectomy on the other, thereby allowing the patient to dispense with glasses both for near and for far sight.

S. S.

III.—THE PATHOLOGY OF CATARACT.

- (1) Thompson, Edgar S.—Observations on the pathology of the crystalline lens. *Annals of Ophthalmology*, July, 1904.
- (2) Harms, Cl.—Anatomical account of a case of spontaneous resorption of senile cataract within the capsule. (Anatomische Mitteilung zur Spontanresorption seniler Katarakt in geschlossener Kapsel.) *Klin. Monatsbl. f. Augenheilk.*, 1905, I, p. 147.
- (3) Terrien, F.—Miliary abscesses developed in the corneal cicatrix after the operation for cataract. (Abscès miliaires développés dans la cicatrice cornéenne après l'opération de cataracte.) *Archives d'ophthalmologie*, juin, 1905.

- (4) von Hippel, Eugen.—Anatomical researches on congenital cataract, being also a contribution to our knowledge of a new malformation of the lens. (*Anatomische Untersuchungen ueber angeborene Cataract zugleich im Beitrag zur Kenntniss einer neuen Missbildung der Linse.*) *Von Graefe's Archiv für Ophthalmologie*, Juli 4, 1905.
- (5) Lewis, Frank N. and Thompson, Edgar S.—Zonular cataract with irideremia: extraction of the lens, which had become entirely opaque, in the capsule, with microscopic examination. *Ophthalmic Record*, August, 1905.

(2) Harms adds another to the six cases already reported of the anatomical examination of cataractous lenses absorbed within the capsule. A widow, aged 75 years, was seen in August, 1903, suffering from violent radiating pains in the left eye, which had been blind for seven years. A senile cataract had been successfully removed from the other eye in June, 1888. No history of injury. Upon examination, the left eye was congested, tension *plus* I, sight equal to hand movement, projection uncertain, and a yellowish body, recognised as the crystalline lens, lay in the lower part of the anterior chamber, surrounded by the loose and folded capsule. The atrophic optic disc showed a glaucomatous cup, about 4 D. in depth. The eye was removed, hardened in alcohol and formol, embedded in celloidin, and serial sections were made through the entire globe. The lens-remains, which measured 4·8 mm. by 1·7 mm., lay, surrounded by the relaxed and folded capsule, against the posterior surface of the cornea in the lower part of the anterior chamber. The nucleus, of regular outline, still showed traces of lamination. The capsule was closed, as shown by the examination of numerous serial sections. Careful search was necessary to find any endothelial cells, and the few met with were degenerated. Between the capsule and nucleus an amorphous tissue containing cell nuclei was found. Angle of anterior chamber widely open; meshes of ligamentum pectinatum not much thickened, and not blocked by cellular elements. Iris and ciliary body atrophic. Hyaline degeneration of the ciliary processes. Endarteritis of some of the vessels of the anterior uveal tract. Retina markedly thinned, but vessels practically normal. Optic nerve atrophic. Papilla excavated, and lamina cribrosa pressed backwards. The absence of the capsular endothelium from some of the reported cases led v. Hippel to surmise that resorption of the cataract was due to primary disappearance of the endothelium, thus allowing the aqueous humour to find its way into the lens capsule. Axenfeld and Natanson, however, believe that resorption of the cataract in the capsule represents the final stage of

a long-existing Morgagnian cataract, and has nothing to do with the endothelium. Harms points out that in all cases where upon pathological examination the endothelium was missing, the cataract had developed years before. He therefore suggests that disappearance of the endothelium is merely the terminal stage of the spontaneous absorption of cataract. It is probable that liquefaction of the lens substance deprives the endothelium of its natural internal support, so that the layer may eventually become entirely detached by the incessant movements of the capsule.

S. S.

(3) Terrien, in a brief note, draws attention to small masses of polynuclear leucocytes—to miliary abscesses in fact, that he has often observed with the microscope in the corneal cicatrix left in dogs soon after the experimental removal of the crystalline lens. The small leucocytic collections may be found, even during the first few days after the operation, in the epithelium covering the wound. They are not visible to the naked eye. Terrien surmises that they may exist in man also, and, in that event, that in predisposed subjects they may become the starting-point of infections of the eyeball.

S. S.

(4) In examining the eyes of three new-born rabbits, affected with microphthalmos and coloboma, and also the eyes of a child, three days old, with identical malformations, v. Hippel found the following anomalies in the lens :—(1) a ridge formed by the proliferation of the capsular epithelium, encircling the capsule at the place where the mesodermal ingress produces the coloboma; (2) the lens shows an annulus similar to the one normally seen in reptiles and birds; (3) abnormal arrangements of the lens-fibres; and (4) formation of cataract, especially liquefaction of the lens. Von Hippel thinks that most of these changes are due to the action of the mesodermal ridge, the effect of which must be greater if the vitreous is scanty, as it is likely to be, in eyes with considerable microphthalmos. The presence of an annulus seems to point to a connection of coloboma with atavistic manifestations. Considering the comparative frequency with which cataract occurs in microphthalmos, and the striking appearance of the lens in these cases—generally flat and extremely small, and often quite different from what clinical examination would lead one to expect—these anatomical changes as found immediately at birth are of great interest. They also show how short a time is sufficient to lead to the formation of cataract.

R. GRUBER.

(5) The sight of a man, aged 44 years, had always been poor, and upon examination by Lewis there were found irideremia and cataract—hypermature in the right and mature in the patient's left eye. Through an upward corneal section the left

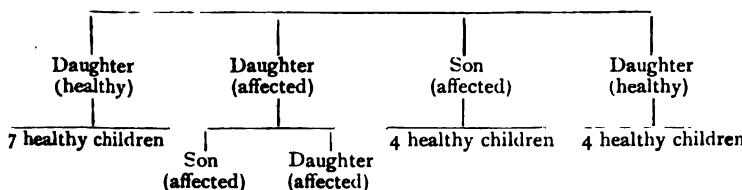
lens was removed in its capsule by means of a wire spoon. Slight loss of vitreous. With + 14 D. sph. V. = 20/100. Operation on the second eye was not attended with such favourable results (V. = 2/200). **Thompson** examined the lens in its capsule removed from the left eye, with results that may be epitomised as follows.—Capsule intact. Lens had undergone cataractous degeneration of different degrees in different parts. The usual position of the opaque zone in lamellar cataract showed advanced degeneration and pronounced intervals between the lenticular fibres, filled with granular detritus and spheres of Morgagni. There was a second "zonular" area farther out. The nucleus was sclerosed and fissured. Beneath the capsule the cortex was converted into a pultaceous mass, devoid of all fibrillar structure. Some twelve radii of advanced degeneration extended from the larger zonular area to the capsule. These radii were composed of spheres of Morgagni and detritus. They were so sharply defined from the more normal fibres around them that it was evident that the patient originally suffered from a rather uncommon form of congenital zonular cataract, upon which total cataract was ultimately grafted, as it were.

IV.—HEREDITY AND CATARACT.

- (1) **Horovitz, Heinrich.**—A family with lamellar cataract. (*Eine Schichtstarfamilie.*) *Berlin Thesis*, 1903. Gustav Schade, Linienstrasse, 158.
- (2) **Hunter, T.**—Two cases of idiopathic general cataract in children closely related. *Lancet*, 27th May, 1905.
- (3) **Nettleship, E.**—On heredity in the various forms of cataract. *Royal London Ophthalmic Hospital Reports*, Vol. XVI, Part III, 1905.

(1) Horovitz reports five cases of lamellar cataract in three consecutive generations of the same family, seen between 1874 and 1902 in Professor Hirschberg's practice. The accompanying "tree" demonstrates the relationships of the patients in question:—

FRAU D.
(affected).



Horovitz draws attention to the circumstance that the disease is here transmitted through the distaff side. He quotes cases described by Knies, E. Müller, Storbeck, Hosch, &c., and discusses the etiology of the condition, which he ascribes to malnutrition due to rickets. He adduces the views of other observers; and, in conclusion, mentions the methods of operation adopted by his chief, Hirschberg. J. F. S.

(2) Hunter's two patients were first cousins. The grandfather of the children had an incipient cataract in one eye.

(3) For the purposes of this paper, cataract is divided into two classes: Class A—Acquired or Post-Natal; Class B—Congenital. Of Class A, Nettleship has 145 families, containing 500 affected persons. Class B contains 183 patients, of whom 90 were males and 93 females, besides about 55 in which the sex is not stated. The cases are carefully worked out, and, as far as possible, the histories are given. It is almost impossible to abstract the paper, which must itself be read, in order to appreciate the various points it brings out. C. D. M.

V.—CATARACT OPERATIONS.

- (1) Koslowski.—Upon the cure of posterior capsular cataract. (*Ueber die Heilung der hinteren Capselstare.*) *Archiv für Augenheilkunde*, November, 1904.
- (2) Chavez.—The treatment of hypermature cataracts. (*Cataratas hipermaduras.*) *Anales de Oftalmología*, Novembre, 1904.
- (3) Condon, Captain de Vere.—Two cases of cataract extraction. *British Medical Journal*, January 28th, 1905.
- (4) Kuhnt, H.—On cataract extraction in cases of shrunken conjunctival sacs. (*Ueber Starextraktion bei wesentlich eingeengtem Bindehautsacke.*) *Zeitschrift für Augenheilkunde*, Februar, 1905.
- (5) Rogers, F. T.—Reclination of the lens: under certain conditions a justifiable operation. *Journal of the American Medical Association*, 22nd April, 1905.
- (5A) Hirschberg, J.—On the operation for removal of the soft lens of sympathetic ophthalmia, with remarks on sympathetic ophthalmitis. (*Zur Operation des sympathischen Weichstars nebst Bemerkungen ueber sympathische Augen-Entzündung.*) *Centralbl. für prakt. Augenheilkunde*, April, 1905.

- (5B) Pascheff.—Iridotomy in extraction of cataract. (*L'iridotomie dans l'extraction de la cataracte.*) *Archives d'ophtalmologie*, avril, 1905.
- (5C) Baiardi.—Notes on the cataract operations performed in the Ophthalmic Hospital from 1893 to 1904. (*Considerazioni sulle operazioni di Cataratta praticate nell'Ospedale Oftalmico dal 1893 al 1904.*) *La Clinica Oculistica*, Aprile-Luglio, 1905.
- (6) Businelli.—A clinical lecture on artificial maturation of cataract. (*Sulla maturazione artificiale delle cataratte di lento decorso. Lezione clinica.*) *Riv. Italiana di Ottalmologia*, May-June, 1905.
- (7) Domec.—Posterior division of the capsule in secondary cataract. (*De la section capsulaire postérieure dans la cataracte secondaire.*) *La Clinique Ophtalmologique*, 25 juin, 1905.
- (8) Alonso, Antonio.—The place of iridectomy in the operation for senile cataract. (*La iridectomia en la extraccion de la catarata senil.*) *Anales de Oftalmología*, September, 1905.
- (9) Smith, Major Henry.—Extraction of cataract in the capsule. *Indian Medical Gazette*, September, 1905, and *Archives of Ophthalmology*, November, 1905.
- (10) Emeljanow.—The operative treatment of cataract in the Horse. (*Die operative Behandlung des Katarakts beim Pferde.*) *Berl. Tierärztl. Wochens.*, 1905, p. 559, and *Die Ophthal. Klinik*, 20 Oktober, 1905.
- (10A) Girard.—Iridotomy in secondary cataract. (*Les cataractes secondaires à iridotomie.*) *Rev. générale d'ophtalmologie*, octobre, 1905.
- (11) Hirschberg, J.—On the crucial division of iris and capsule done at separate times. (*Ueber zweizeitigen Kreuzschnitt zu Iris- und Kapsel-Zerschneidung.*) *Centralbl. f. prakt. Augenh.*, November, 1905.
- (11A) Chavez.—Hypermature cataracts. (*Des cataractes ultra-mûres.*) *Recueil d'Ophtalmologie*, novembre, 1905.
- (12) Oxley, Captain J. C. S.—Cataract extraction in the capsule. *Indian Medical Gazette*, December, 1905.
- (13) Blaschek, A.—Report on 500 cases of cataract extraction. (*Bericht über 500 Katarakt-Extraktionen.*) *Zeitschr. f. Augenh.*, Ergänzungsheft, 1905.

- (14) **Fick, A. E.**—On division of the ciliary nerves, avoiding the optic nerve. (*Ueber Durchschneidung der Ciliarnerven mit Schonung des Sehnerven.*) *Zeitschr. f. Augenheilk.*, Januar, 1906.

(1) **Koslowski** (Kiev) has an article upon the cure of posterior capsular cataract, especially as it now and then occurs in diseases of the choroid and retina. During the last five years he has operated on twenty-one cases, of which four were affected with retinitis pigmentosa, three with chorido-retinitis, seven with choroiditis, while in seven the fundus was free from morbid changes. The sight was improved in all but three of these cases. In order to remove the capsular cataract, Koslowski first renders the lens opaque. This, as he points out, may be effected in one of two ways: first, by massage through the cornea after the performance of a preliminary iridectomy; or, secondly, by repeated discussion. He finds the latter much preferable to the former method of operating. The time consumed by repeated discussions, however, is great, so that Koslowski has adopted another plan in his twenty-one cases. He performs a preliminary iridectomy, and follows that up with one or two "needlings." He then extracts the more or less transparent lens and its capsule. This succeeded in seven of the twenty-one cases, but in the others Koslowski was compelled to remove the capsule by introducing forceps into the eye.

S. S.

(2) **Chavez** holds that it is much safer to treat these cases by removing the lens with its capsule in a scoop. Extraction in the ordinary way is almost always complicated by loss of vitreous or by luxation of the lens. The capsule is very dense and inelastic, and will not tear in the usual way; if much force be used in the attempt to lacerate it, the whole lens is often driven back into the vitreous; even if the capsule is torn, it is so altered that it does not retract and allow of the passage of the lens through the rent. On the other hand, extraction by the scoop is associated with very small loss of vitreous, and the results are usually good.

HAROLD GRIMSDALE.

(3) In **Condon's** first case the lens was delivered in its capsule. The second case is so unusual that it may be described almost in the author's own words. A cataract was removed from the eye of an old man, aged 60 years. After the extraction of the lens, the pupil still remained white. Thinking that a piece of opaque capsule remained behind, Condon tried to remove it by upward pressure on the cornea. To his astonishment, a second cataractous lens presented in the wound, and was delivered in two segments, being broken along its weakest and thinnest diameter. This lens differed from the first in being

about 2mm. in thickness at its circumference, and towards its centre it resembles tissue paper. It appeared to be plano-concave.

(4) **Kuhnt**, on account of the extensive prevalence of trachoma in his district, has to operate on many cases in which the conjunctival sac is either extensively diseased, or else so reduced as to make ordinary manipulations difficult or open wounds dangerous. He advocates in all these cases cataract extractions by the subconjunctival method. An area of conjunctiva from the lower corneal margin downward is raised, and the corneal incision made under cover of this protecting layer. The operation takes longer to do, but is said to be much safer. It is therefore to be recommended in all cases where great care must be taken, such as operation on an only eye, in nystagmus, in unruly patients, etc.

A. LEVY.

(5) The argument of **Rogers'** paper is that reclinement has been successful in many instances, that it may be safely done, and that under certain conditions, it is a justifiable procedure. Citing Argyll Robertson's statistical paper of 5,729 cases with its 82% of successes, the main support of the first assertion, and obtaining a concensus of opinion from seventy-six prominent ophthalmic surgeons in the United States of America, the author states that the advisability of the procedure may be considered as follows: with the aged or infirm, or with those suffering from exhausting diseases; in cases in which there is a non-curable affection of the conjunctiva or lacrymal sac; in cases in which one eye has been lost by suppuration or by haemorrhage following operative procedure, and a similar result is feared; in cases of obstinate bronchitis; upon eyes in which there is a fluid vitreous with tremulous iris; with the insane or with unmanageable patients; and with the very deaf, in whom the assistance of the patient cannot be secured.

CHARLES A. OLIVER.

(5A) **Hirschberg** reports the case of a woman, *et. 26*, who lost her left eye from detachment of the retina with secondary glaucoma, for which an iridectomy was done. One month after this, irido-cyclitis in the right eye. The left was promptly removed, and the right improved somewhat under treatment, but in the course of the next year became totally blind from secondary cataract, and remained so for two years. When Hirschberg saw her first, the eye was soft, and the iris atrophied and bound down with fibrous tissue (carrying vessels) in the pupil. The operation consisted in making an incision into the anterior chamber, and with a large capsule forceps removing that portion of the anterior capsule which occupied the pupil, and then washing out the soft lens material. The eye recovered perfectly, and vision was fingers at $1\frac{1}{2}$ metres with a good field. Hirschberg draws attention to

the fundus changes in sympathetic disease, which he has already described — five spots of choroiditis in the periphery of the fundus.

A. LEVY.

(5B) Instead of the usual iridectomy, **Pascheff** practises iridotomy during the extraction of the cataract. For this purpose he employs a special instrument (see *Wochens. f. Ther. u. Hygiene des Auges*, März 9, 1905), an "iridotome"—that is to say, a sharp hook upon which slides a small knife capable of movement by means of a ring at the end of the instrument. The hook, introduced into the anterior chamber, engages the sphincter, which is then divided by means of the blade. H. DE V.

(5C) **Baiardi** (Turin) declares that simple extraction, as compared with all other operative treatment, is by far the best operation to perform, inasmuch as it leaves the eye in its normal state, with the exception of the hypermetropia consequent on the removal of the lens, which, of course, is afterwards easily corrected by appropriate glasses. Whatever be the precise method employed, however, it is not only the immediate effect that deserves our consideration, but more particularly the final results—that is, whether the patient will continue to enjoy the vision obtained, or will, owing to some complication or other, lose it. Simple extraction—that is, extraction without iridectomy—has the disadvantage of rendering the exit of the cortical matter more difficult, and hence the greater frequency of secondary cataract, and the entanglement of the iris in the corneal cicatrix easier, a complication often leading to secondary glaucoma. For the purpose of avoiding the above complications Baiardi has modified the operation of simple extraction by introducing a peripheral iridotomy. Having made the corneal section, Baiardi introduces Wecker's blunt forceps-scissors perpendicularly to the surface of the iris and cuts a small hole in it; he then goes on with cystotomy, etc., and having extracted the nucleus, introduces once more Wecker's instrument into the original hole made in the iris and enlarges it to half the size of the corneal incision. Through the iridotomy thus obtained, he extracts the whole of the cortical substance, and thus obviates the disadvantages of simple extraction, *viz.*, secondary cataract and prolapse of iris, and at the same time obtains the advantages proper to the same operation, *viz.*, a central pupil, greater acuteness of vision, and better adaptation of the pupil to the different intensities of light.

CHARLES MANCHÉ.

(6) **Businelli** advises artificial maturation by means of massage of the anterior capsule. He notes that the anterior cortex only is much affected by this procedure, and suggests that it might be advisable, under certain circumstances, to introduce a spatula

through an incision in the sclerotic and massage the posterior capsule. He does not think that such a procedure would be attended by much risk, but he has never attempted it.

(7) Domec here describes a method of division with a specially curved knife of his own design. No drawing of the knife is given. The blade is introduced vertically at the corneal margin, and apparently is made to penetrate the membrane and then divide it from behind forwards. ERNEST THOMSON.

(8) In spite of the obvious attractions of the simple operation, the round mobile pupil, the absence of blood during the operation, and the prevention of prolapse of capsule, Alonso thinks the disadvantages are sufficient to counterbalance them. Chief of these is the frequency of prolapse of iris. This can be avoided with certainty only by iridectomy. On the other hand, the disadvantages of the combined operation are largely theoretical, and it possesses many special features. The toilet of the pupillary field and the avulsion of the capsule are much facilitated by an iridectomy. The prolapse of the capsule is much easier to deal with satisfactorily than prolapse of the iris.

HAROLD GRIMSDALE.

(9) Major Smith gives the results of one year's work thus :—

TABLE showing results of cases submitted to extraction in the capsule at Jultundur Civil Hospital from the 31st May, 1904, to the 31st May, 1905.

Nos.	Iritis.	Escape of Vitreous.	Capsule bursting.	Capsule left behind.	First-	Second-	Failures.
					class results.	class results.	
2,616	Per cent. 0·3	Per cent. 6·8	Per cent. 8·0	Per cent. 4·28	Per cent. 99·27	Per cent. 0·38	Per cent. 0·34

The figures in the third, fourth, and fifth columns are practically the same as those of an earlier series of cases given in a paper read at the British Medical Association meeting of 1903 (*see* THE OPHTHALMOSCOPE, Vol. II, p. 203). Major Smith's enormous experience, extending to more than 9,000 of these operations, gives an impression of finality to the percentages, as probably approximating very closely to the best possible results of extraction in the capsule, at least under the conditions obtaining in the Punjab. The losses of vitreous were small in all but nine very nervous patients, in whom the accident "would have occurred in any operation." Three of these nine eyes were lost. Excluding 112 cases in which capsule was left behind through accidental rupture, there were 2,494 complete extractions. Among them there were only two cases of iritis, whereas among patients when capsule was accidentally or purposely left behind,

iritis occurred in five per cent. of the cases. The inflammation is attributed to irritation of the iris by minute particles of lens substance left with the capsule. During the year there were 151 ordinary extractions performed either in children or for cataracts in adults which were considered unsuitable for the complete operation. Among such cataracts Major Smith places "atrophic" lenses and others with a bluish tinge. Among the 2,494 complete operations there were nine absolute failures through suppuration. An iridectomy was made in all the operations, "hence the absence of prolapse of iris." In previous years iridectomy was usually dispensed with. Major Smith does not recommend his operation to be performed by beginners.

(10) **Emeljanow** operates in the horse by discussion of the crystalline lens, and reaches the following conclusions:—(1) General anaesthesia is not necessary for discussion, local anaesthesia sufficing; (2) The operation is very simple; and (3) Puncture of the cornea and evacuation of the aqueous humour are not often complicated by prolapse of the iris. KLETT (Stuttgart).

(11) **Hirschberg** reports two cases—the first, a woman, *æt.* 58, who, three years previously, had a cataract removed, followed by several needlings. Now, there was a thick capsular membrane, absolutely opaque. The first operation consisted in dividing the membrane horizontally, which gave patient some vision, and eleven days later a vertical section of the membrane was performed. After some weeks, with adequate glasses, patient's vision = $\frac{1}{2}$, and this improved somewhat in the course of the following two years. The second case, was that of a woman, *æt.* 59 years, who had had a cataract removed two years previously, an operation followed by inflammation. When Hirschberg saw her the eye presented a dense secondary membrane, to which the iris was adherent and the pupil was drawn considerably upwards. The following operation was performed: a narrow Graefe knife was introduced at the corneo-scleral junction on the outer side just below the horizontal meridian of the cornea. The point of the knife in the anterior chamber was made to transfix the iris, and pushed along behind it for 4-5 mm., then out of the iris across the anterior chamber and out at the nasal corneo-scleral margin. The knife was then made to cut upward slightly, the point withdrawn into the anterior-chamber, the cutting edge turned forwards and the bridge of iris tissue cut across, and the knife withdrawn. It was then found that the membrane behind had also been cut, and thus a fair pupil was formed. This, however, quickly filled up with exudate, and a second operation was necessary. A "baby"-Graefe knife was entered through the cornea at a point corresponding to the lower border of a moderately dilated pupil, the point carried upwards

to the upper border of the displaced pupil, and with a single lifting movement the iris and membrane were divided vertically. This at once gave a large central pupil, and vision shortly after with proper glasses = $\frac{6}{7}$, and this has, so far, been maintained.

A. LEVY.

(11A) **Chavez** strongly recommends the extraction of the lens in its capsule in cases of hypermature cataract presenting the following clinical signs :—

More or less decided minus tension, increase in depth of the anterior chamber, opacity of the lens and its capsule, and a tremulous iris. The latter sign the author regards as being due to rupture of the zonule of Zinn and the invasion and softening of the anterior part of the vitreous by the aqueous humour. Extraction with cystotomy is not suitable for these cases, because the capsule is too thick and tough to be easily divided, and if divided it does not retract owing to the loss of its elasticity. Pressure applied in order to force the lens through generally results in rupture of the attenuated suspensory ligament, luxation of the lens and escape of vitreous. Further, should the lens be successfully extracted, the opaque capsule and adherent cortex, which cannot be completely removed by either curette or intra-ocular irrigation, render the establishment of a clear pupil and good vision impossible.

The author regards an iridectomy as desirable, and prefers to extract with a Snellen's vectis rather than a Pagenstecher's spoon. The same operation is adopted both for spontaneous and traumatic capsulo-lenticular cataracts. The author finds it necessary to perform this operation in about 5% of his cataract cases. His results are good ($V.=\frac{6}{7}$ and $\frac{6}{7}$ with correction, in two of the recorded cases).

In two cases only has he seen inflammatory complications (iritis and irido-choroiditis), and he has never observed detachment of the retina or atrophy of the globe.

The total number of cases in which he has performed this operation is not given.

J. JAMESON EVANS.

(12) **Captain Oxley**, himself a beginner, contends that lenses should be extracted in their capsules, even by inexperienced operators, and, in support of this contention, gives his own results :—

No. of Cases.	Escape of Vitreous.	Capsule burst.	Capsule left behind.	1st class results.	2nd class.	Failures.	Iritis.
40	12	3	1	37	1	2	2

He states that the loss of vitreous was small in all cases, and no ill effects were observed. There were no suppurations. An iridectomy was made in all cases. Captain Oxley holds that this method of extraction is no more difficult than the ordinary one; that it practically eliminates iritis; and that the patient can leave hospital earlier.

(13) **Blaschek** reports all the cases operated on for cataract at Graz clinic for the space of about three years—500 in all. The method of operation was the usual one with a conjunctival flap, but without iridectomy. The field of operation, including the conjunctivæ, were cleansed the day before the operation with cyanide of mercury, and again prior to the operation. Special care was taken to ensure asepsis. The surgeon and his assistants wore sterilized gowns and caps, and veils over nostrils and mouth, to prevent distribution of particles while speaking. All instruments were boiled, and then transferred to a lysol solution. As far as results are concerned, 20 eyes were entirely lost from various causes. Of 374 cases done without iridectomy, 33 had prolapse of the iris.

A. LEVY.

(14) **Fick** cites two cases of severe irido-cyclitis following operative interference ("needlings"), which refused to yield to the ordinary remedies and in which vision had been reduced to a very low pitch. Before proceeding to enucleation, in order to safeguard the other eye, Fick performed a more or less complete division of the posterior ciliary nerves. In both cases the improvement was immediate, and the eyes in the course of a short time became quiet and pale, and vision improved. Consequently, Fick is a believer in this form of treatment, and advocates its adoption.

A. LEVY.

VI.—THE PATHOGENY OF CATARACT.

- (1) **Pfister, Jul.**—Our present knowledge concerning the nourishment of the lens and the origin of cataract. (*Die gegenwärtigen Kenntnisse der Linsenernährung und der Katarakt-Entstehung*). *Correspondenz-Blatt für Schweizer Aerzte*, Februar 15, 1904.
- (2) **Peters.**—Further contributions to the pathology of the lens. (*Weitere Beitraege zur Pathologie der Linse*) *Klin. Monats. f. Augenheilkunde*, 1904, Bd. II, p. 37.

- (3) Grilli, J.—Contribution to the cryoscopy and pathogeny of senile cataract. (Contribution à la cryoscopie et pathogénèse de la cataracte sénile.) *Recueil d'ophtalmologie*, October, 1904.
- (4) Leber, Th.—On the causation of cataract. (Zur Pathogenese der Katarakt.) *Klin. Monatsbl. f. Augenheilkunde*, 1905, I, p. 324.
- (4A) Peters, A.—On the causation of cataract. (Zur Pathogenese der Katarakt.) *Klin. Monatsbl. f. Augenheilkunde*, 1905, I, p. 621.
- (5) Roemer, Paul.—The pathogeny of senile cataract considered with regard to the results of serum researches. (Die Pathogenese der Cataracta senilis vom Standpunkt der Serumforschung.) *v. Graefe's Archiv f. Ophthalmologie*, Bd. LX, 2 Heft, April 18, 1905.
- (6) Zirm, Ed.—Our present knowledge of the nutrition of the lens and of its disturbances. *Wiener Klin. Wochenschrift*, 12, 1905.
- (7) Osterroht.—Cataract in tetany. (Katarakt bei Tetanie.) *Die Medizinische Woche*, 1905, 15, and *Woch. f. Therapie u. Hygiene des Auges*, 27 April, 1905.
- (8) Stein, W. H.—On cataracta perinuclearis unilateralis. (Ueber Cataracta perinuclearis.) *Beiträge zur Augenheilkunde*, Mai, 1905.
- (9) Zirm, Ed.—On tetany cataract. (Zur Tetanie-Cataract.) *Archiv für Augenheilkunde*, P. 183, Bd. LII, Juni, 1905, and *Archives of Ophthalmology*, November, 1905.
- (10) Leber, Alfred R.—On the metabolism of the crystalline lens. (Zum Stoffwechsel der Krystalllinse.) *v. Graefe's Archiv f. Ophthalmologie*, November 14, 1905.
- (11) Ruch.—Is there a connection between goitre and cataract? (Besteht ein Zusammenhang zwischen Struma und Catarakt?) *Thèse de Berne*, 1905, and *Rev. générale d'Ophthalmologie*, janvier, 1906.
- (12) Wibo.—A contribution to the etiology of certain forms of cataract. (Contribution à l'étude de la pathogenie de certaines cataractes.) *Compte-rendu du service d'Ophtal. de l'hôpital Saint-Jean, Bruxelles*, 1905, and *Rev. générale d'ophtalmologie*, janvier, 1906.
- (1) Pfister (Lucerne) publishes a paper on the nutrition of the lens and the origin of cataract, in the course of which he cites the views of many well-known authorities. He

endeavours to answer, as far as may be, the three following questions :—1. How does cataract originate?; 2. Can its onset be averted?; and 3. Is it possible to prevent further development when the condition has once commenced.

In foetal life the nutrition of the lens is provided for by the nexus of vessels known as the tunica vasculosa lentis, the blood supply of which comes from three sources, *viz.*, the hyaloid artery, the vitreous arteries, and the so-called circulus arteriosus iridis major. The venous blood is discharged through the iris, crossing the circulus arteriosus iridis major, reaching the area of the choroid, and, finally, emptying into the *venæ vorticosæ*. In the post-foetal state nutrition must clearly be effected in a different way, in order to permit of the perfect transparency of the crystalline lens. It has been proved experimentally that by a process of diffusion albumin can pass into and out of the lens. Colouring material dissolved in the blood-stream appears moderately soon at the equator of the lens, and later in the lens itself. Becker has shown that the sugar-contents of a lens in a case of diabetes change rapidly in consonance with the sugar-contents of the urine. With artificially induced diabetes, sugar has been found in the lens within a short time of the production of the diabetes. Nourishment reaches the lens, therefore, by endosmosis. At the same time, its metastasis does not obey the usual laws of diffusion, inasmuch as it does not gradually approximate its composition to that of the surrounding medium. During life, to a certain degree, the lens has the power of preserving unchanged its composition, which differs markedly from that of the aqueous and vitreous humour. True endosmosis takes place only after death. In short, the lens has certain powers of selection, since it rejects some substances that are useless to it, and attracts others that it requires. The cause or causes of this variation from the usual processes of endosmosis are not yet fully explained, although it may be taken for certain that the capsule and, in particular, the capsular endothelium are closely connected with this remarkable power of selection. The possibility of filtration may be excluded, since under normal conditions, the capsule is stretched, as it were, so that the pressure inside is greater than that outside the lens. Filtration, however, may occur under pathological conditions, which will receive attention later. The kind of nourishment supplied to the lens and its precise method of distribution must be regarded as open questions. Becker believes that he has observed interfibrillary spaces, in which the fluid circulates. Schlosser, also, thinks that nutritive fluid enters at the equator of the lens, reaches the posterior surface, flows thence around the nucleus in

perinuclear canals, and, finally, leaves the lens by means of a "crown of pores" in the anterior capsule. Samelson noted a collection of rust particles at the anterior pole of the lens, after an iron splinter had penetrated the crystalline. He therefore imagined that the particles could not escape through the fine pores in the anterior capsule, whose existence had been suggested by Schlosser. This view, however, can scarcely be correct, since a similar phenomenon occurs when the splinter lies not in the lens but in the vitreous humour. The iron doubtless reaches the spot in question by a process of diffusion, as explained by Leber. Briefly, the theory of a system of canals in the substance of the lens and of pores in the anterior capsule cannot be maintained.

The nutritive fluid of the lens is doubtless supplied by the ciliary body and, more particularly, by the ciliary processes. The origin of cataract is closely connected with the nutrition of the lens, since every lens turbidity is based upon a disturbance of nutrition. Traumatic cataract is a case in point. An opening in the anterior lens capsule admits the aqueous humour, so that the lens becomes swollen, turbid, and eventually absorbed. Knapp has shown that in some animals, as the frog, a localised opacity only occurs, and that this may clear up again almost completely. In non-traumatic cataract there are two possibilities: (1) that the arrangement protecting the healthy lens from the destructive influence of the normal humours is eliminated; or (2) that the quality or the composition of the nutrition is altered.

Amongst authors there is almost complete unanimity of opinion that the protective power resides in the capsular epithelium. It has been shown experimentally that lesions of the capsular epithelium may produce cataract. For example, in this connection Kiribuchi's experiments upon rabbits may be quoted. That observer directed the sparks of six combined Leyden jars against the supra-orbital region of rabbits, and found that cataract resulted from death of the capsular epithelium and hyperæmia of the ciliary body and iris. Hess confirmed necrosis of the capsular epithelium after exposure to an electric shock. Leber observed extensive destruction and folding of the epithelium underlying an intact capsule by stroking a freshly-extracted ox lens with a ball-pointed probe. In the light of these experiments it becomes easy to comprehend the principle of Förster's maturation of unripe cataract by massage of the lens. By producing a lesion of the capsular epithelium, the conditions of diffusion are altered, and turbidity of the lens ensues. J. R. v. Geuns ligatured the venæ vorticoseæ, and thus produced haemorrhage into the anterior and

posterior chambers. It was found that if collateral circulation was quickly established, so that the rise in tension within the eye was neither intense nor long continued, the capsular epithelium, although damaged, soon repaired itself, and cataractal changes, if already initiated, did not advance. Under opposite conditions—*e.g.*, when high tension lasted for a long time—the epithelial cells suffered considerable damage, and the whole lens became opaque. In this connection may be mentioned those rare and interesting cases of spontaneous absorption of cataract in the closed capsule. Up to the year 1900, thirty-four cases of the kind had been collected from the literature by A. v. Reuss. Where anatomical examinations were possible, it was found that the capsular epithelium was absent, signifying that the aqueous humour was thus enabled to penetrate the lens and to effect absorption of the latter. It is of interest to recall the fact that in nearly one-half of these cases absorption of the lens was preceded by an inflammatory condition of the uveal tract, which it may be assumed led to the disappearance of the capsular epithelium.

In so delicate an organ as the lens, variations in nutrition, although seemingly insignificant, may yet determine considerable disturbance. Peters (*Weitere Beiträge zur Pathologie der Linse*), in a case of tetany with cataract, has found microscopical changes in the ciliary body and processes, along with a cloudiness of the outer layers of the cortex of the crystalline lens. Similar changes were also found by the same observer in a case of senile cataract. Peters therefore suggests that the epithelium of the ciliary body exercises a selective function, with the consequence that the nourishment supplied by it to the lens is poorer in albumin and salts than the blood plasma. In order to determine the quantity of salt in the aqueous humour, Peters induced cataract in rabbits by the administration of naphthalin. Before any changes could be found in the lens there was found an increase in the amount of salt. On ceasing the naphthalin, the salt was found to return to its normal proportion. If further experiments confirm Peters' observations, many points in the pathology of the lens will find a rational explanation. For instance, the ripening of immature cataracts will be explained. A more highly concentration supplied by the ciliary epithelium abstracts water from the lens, leading to a reduced volume, a fact already remarked by Priestley Smith. If the increase in salt is intermittent, water will again enter the lens, and, finally, a swelling of the lens ensues—the stage of intumescence. Magnus (*Die Entwicklung des Alterstars*) says that the structural alterations of senile cataract originate from the equator in 82% of the cases—that is to say, from the

point which we have seen above to be the entrance point of the nutritive fluid of the lens. The theories of albuminuria (Deutschmann) and of atheroma of the carotid (Michel) to account for the causation of cataract have been unable to withstand the test of continuous control observations. Peters, then, inclines to the view that further observations in senile and indeed all forms of cataract in an intact capsule will reveal alterations in the ciliary epithelium as the primary change. In secondary cataract, such as that met with in choroidal disease, we must assume that the inflammation passes over to the ciliary body, and in that way sets up a disturbance of the nutrition of the lens. In primary cataract—*e.g.*, in senile cases and in naphthalin cataract—the epithelial changes are brought about by a toxin circulating in the blood. When we consider that excretory epithelium, as that of the kidney, is specially sensitive to toxins in the blood-stream this idea does not appear to be at all improbable. That naphthalin cataract is not the outcome of direct action upon the lens is proved by the fact that large quantities of that substance can be introduced into the anterior chamber without producing turbidity of the lens (Hess). The conclusion follows that the cataract is produced by the poison in the blood acting on the ciliary body. Indeed, Magnus and Kolinski have found a very high degree of hyperæmia of the ciliary body to be present in the first stages of naphthalin cataract. We have no idea as to the exact nature of the toxin that we assume to cause senile cataract. A merely senile change in the composition of the blood cannot be the cause, since then all old persons should suffer, and that is not the case. The fact that the cataract is practically always bilateral proves that its cause must be sought in the blood.

The cataract in diabetes is probably due not to the direct action of sugar but, as observed by Hess and others, to changes in the posterior surface of the iris, analogous to those already described by Peters in the ciliary body. The human lens when placed in a 5% solution of sugar becomes turbid, but even in the highest grade of diabetes, the amount of sugar in the fluids of the eye is very small. Thus, Deutschmann in a patient with 8% of sugar in the urine found 0.5% in the aqueous and only 0.366% in the vitreous humour. Peters, following up his hypothesis, believes that the posterior surface of the iris participates in the selective functions of the ciliary epithelium. The process may accordingly be similar in diabetes to that which leads to the formation of cataract in naphthalin poisoning.

It is probable also that disturbances in the ciliary body may be responsible for the production of lamellar cataract. Horner states that in 80% of these cases there is a history of rickets, a

view which dates from the times of v. Arlt (1883). A similar factor is probably also at work in the production of total congenital cataract.

Glass-blowers' cataract, cataract from loss of blood, ergot poisoning, and from extremely loud sounds have as yet been too little studied to cast much light upon the question of origin.

In conclusion, Pfister returns to the three questions propounded at the commencement of the abstract. As to the first (the origin of cataract), the discussion has at least indicated a way on which perhaps all forms of the disease may be explained on a common basis. As to the second question, prevention is possible only when there is a question of intoxication with a poison whose nature is known. The answer to the third question (development), must be in the negative with one limitation, *viz.*, that the influence of accommodation on the formation of cataract yet remains to be settled. Schön supposed that with accommodation a tearing of the capsule by the zonular filaments occurred. Other observers dissent from this view. Hess, in particular, reaches the conclusion that the Helmholtz conception is correct, and that accommodation implies not an increased but a lessened strain upon the zonule. At the same time, Hess does not deny a possible connection between accommodation, on the one hand, and turbidity of the lens, on the other, which he explains by assuming that in old age the nucleus of the lens becomes harder and less yielding, so that during accommodation the peripheral layers press more or less strongly against the harder nucleus of the lens. In this way the formation of gaps and slits between the filaments is favoured, and the first beginnings of cataract initiated. With the idea of preventing cataract, not only presbyopia, but hypermetropia also, should be carefully corrected with glasses, a warning that evidently applies also to astigmatism and the irregular strain thrown upon the ciliary muscle by that state of refraction.

R. FORD.

(2) Peters describes two new cases of cataract which resulted from tetany. The microscopical examination showed alteration of the epithelium of the ciliary body (tumefaction of cells, vacuolisation), and oedema of the interior layers of the retina. The lens had the appearances of zonular cataract. Peters is of opinion that tetany damages the ciliary epithelium and thereby produces an alteration of the aqueous humour, thus giving rise to cataract through disturbing the nutrition of the lens. The details of this work must be read in the original.

A. BIRCH-HIRSCHFELD.

(3) In this paper Grilli brings forward further clinical evidence in support of his theory of cataract production (*vide* THE

OPHTHALMOSCOPE, Vol. II, p. 527). He further suggests that the progress of cataract may be impeded by methods calculated to increase the amount of water in the body, and that immature cataracts may be artificially matured by methods—such as sudorifics—calculated to diminish the watery constituents of the body fluids.

J. JAMESON EVANS.

(4 and 4A) These two papers by Leber and Peters respectively are essentially controversial in character. The latter author resents that Leber, in his book "Die Cirkulations und Ernährungsverhältnisse des Auges," Graefe-Sämisch," Vol. II, 2, did not refer to his (Peters') researches in the causation of cataract, while Leber states his reasons for not having done so. The views of Peters may be briefly summarised as follows : the primary change occurs in the epithelium of the ciliary body ; it produces an increase of the inorganic salts in the aqueous humour ; from this altered concentration of the aqueous humour results the impairment of the nutrition of the lens, the immediate effect of which is a shrinking of the nucleus. Leber raises the following objections against the significance of these changes in the ciliary body : (1) They may be simply *post-mortem* changes or produced artificially. (2) They have been observed in the absence of cataract, e.g., in normal eyes after a certain age and as a result of ergotine poisoning. (3) Where the two conditions are met with simultaneously their interdependence is not proved, not to say disproved, as in cases of naphthalin-cataract where the opacities in the lens occur earlier than the changes in the epithelium of the ciliary body. On the other hand, the increase of the inorganic salts in the aqueous humour, as ascertained by Peters himself, is so very slight that it is difficult to attribute much importance to it, especially if it is considered that conditions like intraocular haemorrhage, which would increase the amount of salts considerably, do not give rise to cataract.

C. MARKUS.

(5) Different hypotheses have been advanced to explain the causation of senile cataract, but we are still far from a satisfactory solution of the problem. The theory most generally accepted is Decker's, which finds the origin of the disease in the lens itself, and connects its development with irregular sclerosis during the changes incidental to old age. Schön somewhat similarly blames the displacement of the lens fibres effected by excessive accommodation for the onset of cataract, and Magnus, the impediment to circulation of nutritive fluid caused by the hardening of the lens substance. Another school of pathologists, headed by Peters, attribute particular importance to the morbidly affected osmosis from the anterior chamber, especially by increased per-

centage of salts in the aqueous humour; but it is a fact that even so sensitive cells as blood corpuscles do withstand a much more considerable variation of osmotic pressure than 0·03—0·05 % as they occur, according to Peters, within the ocular fluids. A third line of thought has always connected cataract with changes of the whole organism, without entering into details, but attaching particular importance to disturbances of the circulatory apparatus, as seen during senility. The most fatalistic idea of all is, of course, that the individual simply outlives the vitality of the capsular epithelium, cataract thus representing premature death of the lens, and then no remedy could possibly meet the case. **Roemer** proceeds on altogether new lines. Just as the blood corpuscle can be destroyed by the specific action of certain well-defined poisons, so it is admissible to look in cataract for the action of such a specific virus. Naphthalin has already been proved to be a lenticular poison of this kind. The blood serum contains poison specific for cells of certain other species, and possessing a cytotoxic principle which acts cytotoxic towards alien erythrocytes and bacterial cells. Under certain well-known conditions blood serum also develops a poison acting against its own cells. Roemer's hypothesis starts from this point. He argues that the senile metamorphosis of the human organism offers conditions favourable to the formation of autocytotoxins, which may possess a specific affinity towards some important part of the lenticular protoplasm, and which therefore, if not retained by the organs of secretion, are drawn towards the receptors of this protoplasm in exactly the same way as the haemolysin affects the blood corpuscles. Now this, of course, remains a mere hypothesis, but it fits in with many theoretical and practical considerations, and may provide a starting point which may lead to useful results, even if the theory as a whole should not be able to stand the searching criticisms which are sure to be directed against it. Anyhow, it has already led to some remarkable and interesting investigations of which more anon. It must be clearly understood that the mere formation of these cytotoxins would in any case be insufficient to produce any change in the lens; it is necessary that they should pass into the ocular fluids. It is a great achievement of Wessely and Roemer himself to have shown that under normal circumstances no cytotoxins are filtered into the internal fluids of the eye. The same law also applies to the heterogenic bactericidal ambiceptors. This result is very important as showing that serumtherapy stands only a very poor chance in ocular therapeutics, especially in infection of the vitreous. It is necessary for the inflammation to have made great progress to render the vessels

permeable, and thus give the anti-bodies access to the inside of the eye. The conditions with regard to the anterior chamber are here much more favourable than for the vitreous, which explains the more favourable course of infections in the former.

Roemer's second paper deals in a interesting way with the complicated problems of nutrition which our modern knowledge of the miraculous biological properties of living protoplasm have opened for us. What Roemer tries to prove is that the structure of the lens admits in principle the action of anti-bodies, by containing corresponding receptors which bind them. Ehrlich, the father of serum-science, distinguishes between three forms of receptors, those of the first, second, and third type. Broadly speaking, they account for immunisation, agglutination, and cytotoxination respectively. Roemer is able to prove the existence of all three kinds of receptors in the protoplasm of the lens. He shows, for instance, that the lens matter of all examined species of animals agglutinates blood of the guinea pig (of no other animal and that only at certain temperatures), that it also contains receptors of the first order by being able to neutralise one component of the tetanus poison (the tetanolysin, not the tetanospesium), and also that it exerts antihæmolytic action towards the blood of the rabbit. The experiments directed towards elucidation of these points are of a most painstaking as well as complicated character, and they certainly go far towards enlarging our knowledge of the protoplasmic functions of the crystalline lens. Their importance, it need hardly be said, lies not in proving the fact that the lens matter agglutinates blood of a certain kind, immunises against the action of certain toxins, etc., but in pointing towards the extreme perfection wherewith the protoplasm is, as it were, timed, receiving, acting towards, intercepting, and binding substances of a certain well-defined character and bodies of quite specific toxicity. These laws of affinity, unexplored as yet, are at the root of the normal conditions of nutrition, as well as of pathological changes. Roemer formulates this rule in the words that only such substances and feeding materials can be assimilated by the lens, which contain groups corresponding to its receptors, a theory which must, of course, vastly complicate all our ideas of circulation and osmosis, which do not take the living nature of the tissues into account. In Roemer's opinion it is not so much alteration and defects of nutrition or osmosis but the action of cytotoxic serum compounds, which affect the protoplasm of the lens and thereby produce cataract.

Roemer's work is not yet complete, and we shall further report on it as it is published.

R. GRUBER.

(7) A woman, aged 45 years, had always lived in great poverty, and had nursed eight children for an unduly long time. Since her first confinement, nineteen years ago, she had suffered from cramp. The stomach was dilated, and the thyroid gland was very small. For seven years she had been blind from double cataract. She presented the typical symptoms of tetany. The urine contained 1 % of albumen, in addition to hyaline casts. **Osterroht** connects the cataract, the atrophied thyroid gland, and the tetany one with another.

MAX P.

(8) **Stein** reports five cases of unilateral perinuclear cataract, in at least four of which the condition was due to traumatism. He thinks that perinuclear cataract is here due to a mechanical separation between the central and the peripheral portions of the lens, and also sometimes to a traumatic cataract, which was total in the first instance, having become enclosed by transparent lens substance which was formed at a subsequent period. R. GRUBER.

(9) The credit of first pointing out the connection between some cataracts and a history of preceding fits is due to Sæmisch. Many writers afterwards adduced cases in which cataracts developed rapidly consequent on fits, which were always described as of the nature of tonic muscular spasm, such as is produced by ergot poisoning. Meinert and Bernhardt suggested that most of these cases were probably examples of tetany, a malady which had not been recognised as a clinical entity in the time of the earlier writers. To this and to the allied forms of cataract produced by ergotism and naphthalin, Peters has devoted a considerable amount of attention. At first he was inclined to ascribe the cataract formation to interference with the nutrition of the lens brought about by the temporary tetanus of ciliary muscle, but later he came to the conclusion that the cause was a pathologically raised percentage of salts in the aqueous humour produced by degeneration in the epithelium of the ciliary processes. He would offer a similar explanation for senile and diabetic cataracts. Much more extensive researches, however, are necessary before any definite opinion can be formed as to the cause of cataracts, whether they are a sequence of tonic spasm of ciliary muscles or of alterations in the aqueous, brought about by degenerations in the epithelium of the ciliary processes, or produced by the direct action of some toxin, or, lastly, whether they may not be caused by a simple atrophy of lens fibres. **Zirm** describes five cases, and in a postscript a sixth, in which there appeared to be a definite connection between tetany and the onset of cataract. It is worthy of note that in all the cases epiblastic structures seemed especially to suffer. The patients showed the typical symptoms of tetany. After a debilitating

illness the cramps set in, and at the same time the hair began to fall out and the nails to drop off. In one case a condition resembling pemphigus set in. In one of the cases the external eye muscles were amongst those affected by the tetanoid spasm, and in another case there was, during the attacks, undoubtedly accommodative spasm. We cannot in a brief abstract give fuller details of these cases, nor can we accompany the author into the general discussion on the causation of cataract, but we give his conclusion (with which we are in cordial agreement), namely, that these various nutritional disturbances appear as the result of some toxic substance which specially attacks the nutrient supply of the different epiblastic structures, and that the tetanoid cramps of the hands and of the ciliary muscles are only co-ordinate, and not causative phenomena.

LESLIE PATON.

(10) In experimenting on the diffusion of sundry organic and inorganic bodies into the lens, **A. R. Leber** finds that different substances show great variety of penetrating power, which may be due to the chemistry of the lens, which reveals a remarkable elective power. While referring the reader for details to the original paper, it is interesting to note that Leber, who is not aware of Roemer's work, throws out a suggestion which tallies closely with Roemer's conclusions (*see* abstract No. 5 above). Leber refers to H. Meyer's and Overton's researches on the action of narcotics. These authors reason that as nervous substances are largely built up of fats and similarly constituted bodies, they must show a special affinity for chemically indifferent substances if they are readily soluble in fats; and that all substances similarly constituted act as narcotics. Overton compares these nervous structures with a wet sponge, whose texture is formed of what he calls "lipoids," while the fluid represents the protoplasmic imbibition water. Now it is clear that anything possessing a special affinity to either constituent must disturb the molecular balance and alter its physico-chemical condition. Leber finds that the metabolism of the lens shows remarkable analogy to that of the central nervous system, and it is a remarkable fact that among "lipoids" and narcotic substances we find some which have a well-known influence on the lens-substance even in small dosage, and which, as Leber shows, penetrate remarkably fast into its central portion. He thinks that absorption of even very small quantities of these substances might, if long continued, lead to changes of the molecular constitution of the lens.

R. GRUBER.

(11) From his clinical experiences and his statistics **Ruch** draws the conclusion that no relation exists between goitre and cataract. Among 5,910 patients at the eye polyclinic belonging to the canton of Berne, where goitre exists in from 54% to 90%

of the inhabitants, the proportion of cataracts was 3.9%—that is to say, smaller than in the eye clinics of Germany, where goitre is rare. Among 58 patients who were treated surgically for goitre in Berne, the author found three only with cataract, but their ages ranged from 54 to 69 years. Amongst 42 patients suffering from cataract who were operated on at Berne, the proportion of those with goitre was no greater than among the cantonal population in general.

G. SIMON.

(12) **Wibo**, after having discussed the well-known connection between certain affections of the eye and those of the teeth, goes on to show that there exist purely idiopathic cataracts, occurring in young, vigorous persons, free from hereditary or acquired disease. In this particular class of case one is struck with the correlation between the commencement of the opacity and certain neuralgias of dental origin. By reflex action upon the irido-choroidal tract, the dental irritation alters the nutritive conditions of the crystalline lens, and thereby provokes the appearance of cataract.

E.R.

VII.—CATARACT DUE TO THUNDER, LIGHTNING, OR ELECTRICITY.

- (1) **Morgan, Major J. C.**—A case of traumatic cataract due to lightning stroke. *Journ. Royal Army Medical Corps*, February, 1905.
- (2) **Verhaeghe, D.**—Cataract produced by thunder-clap. (*Cataracte par coup de foudre.*) *Gazette des Hôpitaux*, 8 août, 1905.
- (3) **Ellett, E. C.**—Cataract caused by a discharge of industrial electricity. *Ophthalmic Record*, January, 1906.

(1) A man, aged 22 years, entered the Army in April, 1900, when he passed the tests for sight without difficulty. In January, 1902, being then encamped outside Pretoria, he was struck by lightning, and in consequence was blind for some days. The sight of one eye was eventually recovered, but that of the other remained defective. When examined by **Morgan** in October, 1903, a cataract was found to be present in the blind eye, the sight of which was equal to distinguishing finger-movements only.

(2) **Verhaeghe** distinguishes between injuries to the eye caused by lightning and those due to thunder-clap. Such injuries may be of several kinds, and may involve: (1) cornea; (2) crystalline; (3) fundus; and (4) ocular muscles. Of these, injuries to the lens are much the commonest. **Verhaeghe** relates

the following case, observed at Lille in the service of Professor Baudry.—A custom-house officer, aged 34 years, one night in June, 1901, was overtaken while in the open by a violent storm, during the course of which thunder fell near him and threw him into a ditch. The man, although giddy for some moments, did not actually lose consciousness. Some months afterwards (January, 1902) vision began to fail slowly, and when the patient was examined in November, 1903, it was R. = $\frac{1}{6}$ and L. = $\frac{1}{10}$. The defective sight was found to be due to lenticular opacities. There were, moreover, vitreous opacities in the left eye, as well as slight pigmentary change in one part of the periphery of the fundus. Under treatment by iodine, internally and locally, some improvement took place, but in October, 1904, a preliminary iridectomy was done on one eye, and this was followed by the extraction of the cataract in March, 1905. The corrected vision of the eye that had been operated on reached $\frac{1}{2}$. Briefly, then, an interval of six or eight months elapsed between the accident and the affection of sight due to incipient changes in the lens ; the lesion in this case was bilateral ; and the cataract attained maturity only after lasting for upwards of three years. Verhaeghe concludes by discussing each of the possible ways by which an electric current may damage the eyes—that is to say, by producing chemical changes in the histological elements, circulatory disturbances in the anterior segment of the eye, or by a purely mechanical action.

S. S.

(3) Ellett reports cataract in a man of 35 years, due to a discharge of industrial electricity. The case recalls one published by Desbrières and Bargy in the *Annales d'oculistique* for February, 1905.* Ellett's patient received a shock from a direct current of 500 volts, which also burned the left side of his nose and face. "Electric ophthalmia" of the right eye followed, and recovered in ten days. In something less than three months (81 days) after the accident, numerous sub-capsular opacities of the lens were observed, and the cataract had become mature about $2\frac{1}{2}$ months later. The other (left) eye remained normal throughout.

VIII.—COMPLICATIONS AFTER CATARACT EXTRACTION.

- (1) Fernandez, J. S.—Ocular haemorrhage after cataract extraction. (*La hemorragia ocular después de la operación de la catarata.*) *Anales de Oftalmología*, Agosto, 1904.

*For abstract see *THE OPHTHALMOSCOPE*, Vol. III (1905), p. 618.

- (2) Dupuy-Dutemps.—On Glaucoma consecutive to extraction of the crystalline lens. (*Du Glaucome consécutif à l'extraction du cristallin.*) *Annales d'oculistique*, T. CXXXII, p. 93, août, 1904, and *Bull. et Mém. de la Soc. française d'Ophthalmologie*, 1904, p. 440.
- (3) De Obarrio.—An unusual reflex complication observed after cataract extraction. (*Algunas observaciones acerca de un accidente reflejo especial que sobreviene despues de la operacion de la catarata.*) *Anales de Oftalmología*, Abril, 1905.
- (4) Roper, A. C.—A case of double cataract extraction followed by glaucoma in both eyes. *Lancet*, June 17th, 1905.
- (5) Clark, C. F.—Astigmatism after cataract extraction as modified by the conjunctival flap. *Ophthalmology*, July, 1905.
- (6) Collins, E. Treacher.—A discussion on capsular complications after cataract extraction. *British Medical Journal*, August 26th, 1905.
- (7) Burnett, Swan M.—An unusual form of exudate into the anterior chamber in iridocyclitis after cataract extraction. *American Journal of Ophthalmology*, August, 1905.
- (8) Becker, H.—Hæmorrhage threatening life persisting four weeks after a cataract extraction. (*Vier Wochen anhaltende lebensgefährliche Blutung in Gefolge von Alterstarausziehung.*) *Ophthalmological Society of Heidelberg*, August, 1905, ref. in *Archiv für Augenheilkunde*, September, 1905, and *Archives of Ophthalmology*, November, 1905.
- (9) Knapp, Hermann.—The lens-capsule in the operation of cataract. *American Journal of Ophthalmology*, September, 1905.
- (10) Bruns, Henry Dickson.—Three unusual clinical observations: Change in astigmatism produced by chalazion; Contact keratitis after cataract extraction; Inherited and acquired syphilis in the same subject. *Ophthalmic Record*, September, 1905.
- (11) Fernandez, Santos.—Opacities of the posterior layer of the capsule after cataract extraction. (*Opacidades de la cristaloides posterior despues de la operacion de la catarata.*) *Arch. de Oftal. Hisp.-Amer.*, October, 1905.

(12) **Collins, E. Treacher.** — **Capsular complications after cataract extraction.** *Royal London Ophthalmic Hospital Reports*, Vol. XVI, Part 3, October, 1905.

(1) **Fernandez** records a case in which haemorrhage after an extraction almost entirely destroyed the sight of the affected eye. Some eleven years after it became necessary to remove the lens of the other eye ; this was undertaken with apprehension, but the result was all that could be desired. In such cases the blood comes from the short ciliary arteries ; this has been demonstrated by examination, but the cause of the rupture of the vessel is not so clear. Probably the chief factors are the arrangements of the arteries in the sclerotic, high arterial tension, and arterio-sclerosis. In such cases it has been proposed to adopt the old operation of couching. Fernandez thinks that in similar circumstances, he would probably make use of this method rather than risk extraction, provided he had in the meantime managed to acquire a suitable dexterity in its performance.

HAROLD GRIMSDALE.

(2) **Dupuy-Dutemps** records a case of glaucoma, at first chronic but later sub-acute, which developed in an eye operated on ten years previously for high myopia by extraction of the lens and was cured by simple section of a capsular band which had become adherent to the cornea. He considers that glaucoma occurring some time after the operation in eyes from which the lenses have been removed, may be either primary or the direct but distant result of the intra-ocular changes due to the extraction, especially total irido-capsular adhesion, and incarceration of the iris or capsule in the corneal wound.

R. J. COULTER.

(3) **Obarrio** has observed, after several cases of cataract extraction, a prolonged conjunctival injection which did not yield to the usual remedies. In the cases recorded, four in number, examination disclosed caries of the premolars, and their removal brought about (or, at least, was followed by) disappearance of the redness. The path of the reflex is through the Gasserian ganglion.

HAROLD GRIMSDALE.

(5) In a brief article **Clark** considers that the factors that should be considered in studying the prevention of post-operative astigmatism are the following :—1. The proper location and character of the incision, whether with or without a conjunctival flap. 2. Accurate and immediate coaptation of the edges of the wound. 3. The absence of prolapse or incarceration of the iris. 4. The after-dressing and control of the patient. 5. The absence of those conditions, such as the retention of large amounts of cortex, which tend to produce increase of tension, if not pro-

lapse; and (6) combined or simple extraction. He justly says that if, with the section entirely in the line separating transparent corneal tissue from the limbus, and without, as Snellen has suggested, turning the knife backward in the upper portion of the limbus, we could obtain a well-formed conjunctival flap extending some eight or ten millimetres along the corneal margin and backward on the bulbar conjunctiva some three or four millimetres, we should have an ideal corneal section in a large measure free from the risk of prolapse of the iris and excessive post-operative astigmatism.

C. A. O.

(6) A discussion took place on the capsular complications following cataract extraction at the annual meeting of the British Medical Association, held at Leicester in July, 1905. In opening the discussion Collins classified the complications under two headings:—I. Those resulting from adhesions between the capsule and the extraction scar, and II. Those resulting from opacity occurring in connection with it.

I.—*Complications resulting from Adhesion of the Lens Capsule to the Extraction Scar.*

The capsule may be (a) entangled in the extraction wound or (b) agglutinated to it by inflammatory exudate.

By far the most serious conditions arose from the first of these, for capsule lying in the wound delayed indefinitely the firm healing of the scar, acting as a foreign body. All the three cases in which he had met with this complication had severe iridocyclitis, and two of them had sympathetic inflammation in the fellow eye. Details of the clinical history and pathological appearances of the eyes were given. The sections in all the three cases showed thickening of the sclero-corneal tissue in the vicinity of the wound, due to the spacing out of the layers of fibrous tissue and some round-cell exudate between them. The conjunctival flap was elevated, due to cell infiltration beneath it and there was a large accumulation of cells surrounding the entangled capsule, with some giant cells. The delayed healing of the wound increased the liability of the eye becoming infected from the conjunctival sac.

A less serious condition was caused by adhesion of the capsule to the wound without its being actually incarcerated in it. Either or both ends of the divided capsule may become adherent. A simple agglutination does not delay the healing of the wound, but has a great tendency to draw the capsule and iris forward, and the more corneal the incision the more will the capsule be so displaced. Advance in the position of the iris tends to close the angle of the anterior chamber and to produce glaucoma.

The fact that an iridectomy has already been done might at first suggest that glaucoma could not be produced, but the angle

of the anterior chamber near the scar had invariably been found to be closed by a stump of the root of the iris or by the most anterior of the ciliary processes, which has been held or drawn forward by the adherent capsule. It is, however, by no means every case of adherent capsule that produces these disastrous results. Sometimes tension is not produced until after a needling, due to a fresh adhesion of capsule to the needle puncture or to congestion of the ciliary processes.

The next points for discussion were :

- (a) How the complications could be avoided.
- (b) What could be done to remedy the conditions when giving rise to trouble.

The operation of extraction without iridectomy was less liable to lead to adhesion of the capsule to the wound than if an iridectomy were done ; however, neither was completely free from the risk, and in one case the author had seen the anterior hyaloid membrane of the vitreous become adherent in a case in which the lens was removed in its capsule without iridectomy ; this drew the iris forward and caused glaucoma.

If a piece of anterior capsule be torn away with forceps, this risk of adhesion is less than if it be only incised with a cystotome, but the adhesion of the peripheral portion of the capsule is still possible.

Sclerotomy, paracentesis, and needling of capsule have all been tried for the relief of tension, but they nearly always fail, for the angle of the chamber remains blocked as before. An iridectomy, if performed on the opposite side to the first one, may open up the angle, but is not certain of doing so, and leaves an unsightly pupil.

In two cases the author had been able to relieve the tension by dividing the capsule in the same way as an anterior synechia of the iris is divided with Lang's knives.

II.—*Complications resulting from Opacity occurring in connection with the Lens Capsule after Extraction.*

There are three causes which lead to this condition :

- (a) Retained lens substance.
- (b) Wrinkling of the anterior capsule with new growth of cells lining it.
- (c) Adventitious fibrous tissue.

The most efficient way to prevent the first two is to tear away the anterior capsule with a pair of capsule forceps instead of simply incising it with a cystitome, as is the more common practice. The development of adventitious fibrous tissue is usually the result of irido-cyclitis, or sometimes organization of a blood-clot on the capsule may produce it.

In 1899 the author determined to remove the anterior capsule in 100 cases of uncomplicated senile cataract with forceps, and to compare these results with those in which the capsule was simply incised. As a rule, he considered needling necessary when the vision was below $\frac{1}{5}$.

Of his first 100 cases in which the forceps were used, only 15 required subsequent needling, and no case required a second needling; while in the second series of 100 cases, four only required needling, and a period of two years has now elapsed since this second series was completed. As the result of this experience of this method of removing the anterior capsule, he found 25 per cent of his cases got full vision = $\frac{6}{6}$ with only the single operation; he much doubted if any other procedure would produce such good results.

The discussion that followed the reading of Collins's communication was remarkable only for the conservatism of the opinions expressed by most of the speakers. **Berry** (President of the Section) advocated the routine employment of the repositor, in order to prevent incarceration of capsule in the corneal wound. The making of a conjunctival flap, he thought, was of service in preventing exogenous microbic invasions. In needling for an after-cataract he invariably selected a point for puncturing the cornea away from the site of the original wound. He was frequently in the habit of withdrawing opaque capsule from the eye by means of forceps. He formerly used forceps instead of cystitome for rupturing the capsule. **Bronner** thought the use of forceps for rupturing the capsule was not unattended by danger. In his experience, capsular complications were much less frequent in extraction without than with iridectomy. **J. T. Thompson** advocated irrigating the anterior chamber with saline solution after extraction of cataract. **Hern** had performed paracentesis in the few cases that had fallen under his notice of glaucoma after extraction of cataract. S.S.

(7) The case seen by **Burnett** was that of a German, 61 years of age, who had a mature cataract in the left eye. The eye was clear, the anterior chamber good, the iris freely responsive to light stimulus, and intraocular tension normal.

An operation for simple extraction was done under strictly aseptic conditions. The procedure was smooth, the lens being delivered without trouble, and the iris promptly returned by a little coaxing; a small amount of cortical matter only remained behind. The pupil was central and round when the dressing—a simple one, held in position by adhesive strips—was applied.

On the third day, when the dressing was changed, the anterior chamber was found to be well filled, the pupil was central and round, and there was no pain. There was but a

slight bulbar injection. Atropine was applied. The case progressed normally until the ninth day, when, rather suddenly, pain set in. When seen a few hours later, there was considerable injection of the eyeball, with some chemosis of the conjunctiva and lids. In addition to the atropine, hot applications were ordered to be applied every four hours. The symptoms increased in intensity until the eleventh day, when a small line of gray deposit was observed at the bottom of the anterior chamber. The pupil still remained of medium size, but appeared hazy, and the anterior chamber was rather muddy. In addition to the local treatment by atropine and hot applications, dionin in five per cent. solution was used every other day. In spite of this, the exudate increased, until on the eighteenth day the mass had reached the pupil, and had assumed a pyramidal form. By this time, the pain had much diminished, but the injection of the eyeball was considerable and lacrymation profuse. The pupil was still of good size, and except at its outer edge, was clearly defined. The inner portion of the iris presented a very good surface appearance, while the outer part, next to the pupillary opening, was swollen and its rugæ were indistinct. At the top and the outer edge of the pyramidal mass, and on the iris at its upper portion near the pupil, there were fine streaks of blood arranged in an irregular manner. These bore a strong resemblance to blood vessels, but examination under a magnifier showed them to consist of extravasated blood lying on the iris surface. There was but a slight amount of pain, although the bulbar injection was still marked. Treatment by atropine, hot applications, and dionin was continued. In a day or two the mass began to diminish in size from below. The iris tissue, except that near the outer edge of the pupil, was of quite a normal appearance. The blood streaks had become changed, both as to their arrangement and position. By the twenty-fourth day the mass was still further reduced in size from below, its edges being sharply defined. The pupillary edge of the iris, except at the outer part, was quite distinct, and the blood streaks were more widely diffused over the iridic surface, being especially pronounced below and outward. On the twenty-sixth day the exudate was found to be confined to the pupillary opening with a small cone with sharp edges projecting into the anterior chamber. The streaks of blood were limited to the upper part of the pupil. The outer part of the iris was still clearing. In about a month's time the exudate had disappeared, except in the pupil itself, and on this remaining portion there were three thin streaks of blood. The iris had assumed a normal appearance, except at the outer pupillary edge, where it seemed

slightly swollen. The pupil as a whole was adherent to the remains of the capsule, but was only slightly smaller than what it was at the onset of the disease. The contraction of the pupillary space continued until, three days later, it showed "two fine blood streaks running vertically down from the iris periphery to the pupillary edge with a small blood streak on the pupillary space itself."

A week later, there still remained a single streak of blood running down over the iris surface from above. The pupil was still further contracted. The eye was free from injection. Intraocular tension was normal, and there was good light projection, although light perception was limited to the recognition of moving objects.

About two months after the operation, an iridotomy was done, the incision—some five millimetres in length—being made with de Wecker's *pince-ciseaux* through the pupil from without inward. The incision opened only to the extent of about one and five-tenths millimetres, owing to the thickness and the toughness of the exudate which was back of the iris.

Although great care was taken to prevent it, there was a recrudescence of the iridocyclitis, but without the appearance of any mass of exudate as before, beginning on the fifth day after the second operation. This subsided in about two weeks' time, leaving a complete closure of the artificial pupil.

About five weeks after this, another attempt was made to secure a permanent artificial opening in the iris, the incision this time being made below the pupil, and in what was believed to be a normal part of the iris. No excessive reaction followed this procedure, and an oval opening, some three millimetres in its largest diameter, was obtained, and has since remained clear. The vitreous humor gradually cleared, and the final vision, when the patient was discharged some three weeks later, equalled 5/20, with a + S. 8 D. C. + C. 4.D. ax. 75°.

It is interesting, the author says, "to note that the astigmatism is, according to the rule, quite the contrary to what is usually found after normal cataract extraction where the axis of the correcting plus cylinder, almost without exception, approaches the horizontal." He says that this is the more noteworthy when we know that the cornea before the operation showed, under ophthalmometric examination, no astigmatism at all. This departure from the customary condition after cataract extraction, he thinks, we can "properly refer to the change in the curve in the cornea brought about by the contraction of the exudate behind the iris in such a manner as to increase the curvature of the vertical meridian."

The foregoing case, he believes, "falls in its more general

characteristics under the classification of the 'spongy' exudates, but there are some points of departure from this form as usually observed which render it worthy of consideration." In every previous instance he has seen, the exudate has come on with comparative suddenness, the anterior chamber being filled in the course of a few hours, and its disappearance effected in only a few days' time at most. In this case the exudate took place slowly, commencing as an apparently typical hypopyon, which, at first sight, he believed, would have led one to fear a suppurative form of inflammation, and while circumscribed rather indefinitely at the beginning, at no time did it fill the anterior chamber completely. Its later progress, however, was typical of the course of the spongy exudate, though much more chronic in its progress. The disappearance of the mass was from the periphery towards the centre, and the edge was sharply defined, while the anterior iridic surface had an almost normal appearance. He says that this is the first time that he has seen a blood extravasation as a complication of acute inflammation of the anterior portion of the uveal tract with the spongy exudate. He has seen it, however, in the plastic form. On these occasions, he states, the quantity of blood has been much greater, filling, in one case, the lower half of the anterior chamber. The shifting character of the blood streaks, he believes, is also not without its interest. The inflammation, he is inclined to think, was largely situated in the ciliary body at the upper and outer portion, the exudate being poured through the pupil into the anterior chamber. The iris itself seems to have participated only to a limited extent, if one "may judge by the large size of the pupil and general appearance of its surface, maintained up to the time when the contraction of the exudate on the capsule and posterior surface of the iris drew it together." As revealed by the iritomy, the lower portion of the iris was but slightly affected.

C. A. O.

(8) A ripe senile cataract was extracted on October 10th, 1903, from the right eye of a man seventy years of age, who had no demonstrable general arterio-sclerosis or haemorrhagic diathesis, no albumen or sugar in his urine, and no myopia, syphilis, or signs of glaucoma. The bleeding began the moment the iris was seized with the forceps for the purpose of performing iridectomy. The haemorrhage was mainly arterial, and in spite of bandaging, rest, ice, gelatine, etc., persisted for five days. At the end of that time the eyeball was eviscerated, because life was placed in jeopardy. Three days later, when the iodoform tampon that had been placed in the scleral cavity was removed, pulsatile bleeding again set in. Pacquelin's cautery was applied to the central artery, the scleral cavity packed, and the sclera united

over the tampon. The haemorrhage was finally checked on November 10th, 1903, after Merck's sterile gelatine dropped into the scleral cavity had hardened—exactly one month after the cataract operation. Becker thinks that the cause of the prolonged and dangerous bleeding must be sought in a local arterio-sclerosis of the carotid artery and its branches, especially the ophthalmic artery and its twigs to the iris and the central artery of the retina.

(9) Three recent publications determined Knapp to accept an invitation to read a paper upon this subject before the Academy of Ophthalmology and Oto-Laryngology. "The first is a remarkable and important discussion on 'Capsular Complications after Cataract Extractions,' at the Ophthalmic Section of the British Medical Association, August 26th, 1905, in the *British Medical Journal*, p. 433. The discussion was introduced by E. Treacher Collins."*

"The *Journal* (he informs us), has only an abstract of the paper, which deals with the difficulties that are caused through the lens capsule, under two heads: I. By entering into the section wound, where it retards the closure of the wound and induces the most deleterious consequences, first causing an uneven, irritable scar, which draws the iris into its proliferating intumescence, develops into kerato-irido-cyclitis, and finally into a chronic sero-plastic uveitis, ending not only in the blindness of the operated eye, but also of the other by sympathetic ophthalmitis; II. By opacifying *in loco*." Collins, the author states, "grounded his remarks on specimens of three cases of severe irido-cyclitis, of which two had degenerated into sympathetic inflammations of the fellow eye." In all three the sections showed thickening of the sclero-corneal tissues in the vicinity of the wound by infiltration with round-cell exudate. The conjunctival flap was elevated, due to the cell infiltration beneath it, and there was a large accumulation of cells surrounding the entire capsule, with some giant cells. The simple agglutination of the capsule into the wound, he tells us, "is frequent, and produces only a mild irritation with slight thickening of its site." It may give rise to glaucoma by drawing the iris forward, and occupying the angle. "In almost all cases of combined extraction, adhesions of the iris stump to the scar have been found in the eyes that have been examined under the microscope (O. Becker). These adhesions drag also the adjacent apices of the ciliary processes into the common scar—a swampy gutter, filled with pabulum for those foulest parasites so eagerly hunted and never caught."

"How is this condition to be avoided, if it cannot

*For abstract see above (No. 6).—EDITORS.

be cured? It is well known—and the late Professor Arlt, one of the best-known cataract operators, told me (Knapp states) so forty years ago—that sympathetic ophthalmia is much rarer in simple flap operations than in Graefe's method. I can confirm this." Knapp says that when he made the old flap extraction he lost cases by infection, "but none that drew the fellow eye into this awful calamity." During Knapp's practice in New York he remembers two cases of loss by sympathetic irido-choroiditis after Graefe's operation. One, he tells us, "has remained vividly in my memory because the most unfortunate consequences followed the operation. At that time I made a miscellaneous division of the centre of the capsule, 'scratching,' say our fellow eye surgeons on the other side of the ocean. There were little cataract remnants, capsule shreds, and probably also some iris in one small deposit near one of the angles of the section. The old gentleman, gouty and debilitated, suffered a great deal. He was visited daily by his wife and daughter, who were much distressed. I treated him very carefully. He was a good patient, and was six to eight weeks in the hospital; but when he felt certain that he would remain blind in both eyes, he drowned himself in his bath tub." Since Knapp has adopted the method of opening the capsule peripherally, and parallel to the corneal section, and omitting the iridectomy, he has seen no trace of sympathetic ophthalmia.

Knapp tells us that when this peripheral opening is correctly done, he has prolapses of the iris, which he cuts as soon as he sees them—that is, the day after the night in which they occur. "This is mostly in the first night."

He speaks of Major Herbert's criticism of his "peripheric splitting." Herbert "made light of it, saying that this splitting of the upper border of the lens behind the iris, where we cannot see what we do and the lens will escape with great difficulty, condemns it at once." Knapp reviewed Major Herbert's book, and "recommended it earnestly and heartily, because it contains many very practical hints and advices, rules which the orthodox text-books ignore. In cataract operation, the least technical trifle that serves a point ever so small should be duly appreciated." He says that in his review of Major Herbert's monograph, with all the just praise, he had to take exception to the author's manner of opening the capsule, which is by a vertical slit from the lower point of the dilated pupil to the upper. He says that "this is the capsule opening I knew long ago. I do not criticise it by deductive argument, but by dry and hard experience. von Graefe, my teacher, did that splitting during my studies in his hospital. At that time I was not quite a tyro in ophthalmology;

among my apprenticeships I could count a year in London at the old Moorfields with Bowman, Critchett, and others, where I seldom missed a day."

Knapp believes that "the vertical splitting is unfavourable for the exit of the lens; the horizontal, parallel to the corneal section, offers its easiest escape. The iris is no appreciative hindrance. The next and worst drawback of the vertical splitting is that it produces a more or less dense scar, which is much in the way of the light and which is very unpleasant to divide by a later capsulotomy. Graefe made not only a vertical split in the capsule, but also a horizontal one at the periphery of the coloboma. He opened the capsule horizontally in the upper part with a cystitome, which he then turned and with it ripped the capsule from below upward to meet the horizontal incision. In this way he obtained a broad, T-shaped opening, which did not always remain large enough, and my imitation of this procedure in Heidelberg and New York proved no more obliging." The peripheric single opening, Knapp says, "leaves a fine scar near the upper margin of the capsule. The latter is left intact in all the other parts, and is most favourable for a secondary splitting with a sharp, well-proportioned knife-needle. The opening, crucial or T-shaped, remains almost always permanent." Every now and then some of his patients who have been operated that way fifteen to twenty-five years ago come to show him their eyes. "They are ideal, *i.e.*, no disfigurement at all, clear, black pupil, T. and S. normal, and the patients say they never have any trouble with their sight."

Knapp considers two other modes of opening the capsule. "The older one is to 'scratch' the centre of the anterior capsule in different directions with a cystitome, curved needle, or fine hook." This was the general method of Arlt, in Vienna, and many others forty to seventy-five years ago, and it is still practised by many competent operators. Years ago, he says, "I went through the eye clinic in Vienna, where Prof. Arlt showed me one of his patients. He had often been in my clinic at Heidelberg, and at times he performed some cataract extractions when he was asked by the members of the German Ophthalmic Society at the yearly conventions. I showed his cases with peripheric capsule opening, and told him that this was a feature of the cataract operation, because it was almost always free from synechiaæ. He said he had none either after central and miscellaneous discussion. I expressed my doubt. He said, 'I shall convince you if you come to Vienna again.' It was not long after that I went to Vienna, and he showed me all the cases operated and asked me to inspect the pupils with oblique light myself. I did so, and told him: 'There is no free pupil;

all have fine adhesions." "Oh, yes," he replied, "Those are delicate agglutinations, not inflammatory products. They do not impair the sight, and signify nothing." I soon detected the cause of these innocent agglutinations. In watching the passage of the cataract through the narrow pupillary area, I saw small ruptures at the border of the pupil. They were little angular ruptures, well visible so long as the white lens was their background. As soon as the lens is cut they contract and cannot be seen any more. In some eyes there are no adhesions, but many show the small synechiæ. Their creation, so far as I can explain it, is as follows. When the capsule is ruptured miscellaneously, its small shreds come in contact with the tiny, irregular ruptures of the iris and agglutinate. When the capsule is incised away from any rupture of the sphincter portion of the lens, the two wounds do not meet, but close separately. When in a month or later the capsule is discinded with the knife-needle, the shreds of the capsule do not touch a ruptured place, and the pupil remains with very few or no synechiæ, constituting an ideal pupil."

The next mode of opening the capsule, Knapp says, "is to tear a central leaflet from the anterior capsule. This mode is very commendable. About five years ago, on a journey from Egypt to Vienna, he stopped in Buda-Pesth and visited the University Eye Clinic, which at the time was in the care of Professor Schuleck. He knew from Schuleck's publications and hearsay that he was an excellent operator. In the Hospital there were about a dozen patients who had been operated upon for cataract. Schuleck showed Knapp all of them, let him examine them himself, and operated by Graefe's combined extraction upon two patients before him. The operations were without accident, and the patients previously operated on were in the best way of recovery.

When the combined extraction had become popular, and the author had in Heidelberg a fairly large opportunity of operating for cataract, he saw that the capsule was the most difficult factor in the procedure. He tells us that in one of the periodical statistical reports of his cataract operations, he said, "The man who invents a safe method of removing the central part of the anterior capsule will be the greatest benefactor of the hosts of countless old blind people." He states that if in the combined operation the capsule is removed, success is almost certain, provided there are no complications on the part of the eye and no coarse technical faults. Yet he believes that there are also difficulties in the removal of the central part of the anterior capsule. "It is mostly done with a capsule forceps, the teeth of which are sharp and bent somewhat backward. The accidents

to which this is open are chiefly the dislocation of the lens with prolapse of the vitreous and its consequences. Hard capsules do not yield, so that the whole cataract comes out with the capsule, which as a rule gives excellent results." Professor Fuchs in Vienna, he informs us, is a great advocate of this method.

Another drawback inherent to this method, he asserts, is the necessity of an excision of a piece of iris; "otherwise it is too hazardous to manipulate in the narrow pupillary space." He devised (about twenty years ago) a peculiar capsule forceps according to the principle of the nautical grapple-hook. "When the branches of the forceps are opened their claws are directed obliquely towards the capsule, and when the forceps closes it grasps the central part of the capsule and removes it, when it is withdrawn." He has not used this forceps so much as he might have. "The reason was that the tearing of this piece of capsule may dislocate the lens, and leads to prolapse of vitreous when the lens is expelled. Apart from that it produces not a permanent clear way for the passage of the rays of light, as the posterior capsule will opacify, too, by wrinkling and dotting, so that patients who had very good sight in the first three to six months, notice, without pain or discomfort, a gradual deterioration of sight, which, however, can be permanently corrected by a second discussion."

C. A. O.

(10) The three observations described by Bruns are of great interest. The first was that of a series of axial and gradatory changes of astigmia, produced by a chalazion of about three or four millimetres in diameter, situated in the upper lid of the right eye. With a gradual disappearance of the inflammatory mass, "vision for near became clear and comfortable with the old correction."

The second was that of two cases of contact keratitis after cataract extraction. Both lenses were removed by the simple method without any complication, except "an almost invisible nicking of the iris in completing the section" in the first case. Both patients were "ill-nourished, anaemic, weak—old for their ages." Two days after the operation in the first case, a small area of interstitial infiltration, about three millimetres by six millimetres in size and resembling an old leucoma, appeared "about the centre of the cornea." The patient was restless, and the anterior chamber was unclosed. A week after the procedure the anterior chamber was re-established. The capsular remains were broken up. The pupil was dilated under atropine. The leucoma-like spot had become thinner, and had assumed "the appearance of a surgical keratitis (striped infiltration)." This area was "surrounded by a large, clear zone, extending on all sides to the corneal limbus." A triangular bit of capsule could

be "seen to be in contact by its apex with the posterior surface of the cornea opposite the area of infiltration." Upon the fourteenth day after the operation the cornea was clear, and the patient was allowed "to go home wearing cataract cages." In the second case the dressing was the same as that which was employed in the first. Upon the second day it was observed that the pupil which had been dilated by atropine the day before showed a slight tendency to contraction. In eight days' time the eye was quiet, and the pupil, which was clear, was one-half contracted. There was not any entanglement of the iris. The anterior chamber was not reformed. Three days later the bandage was removed, and cataract cages were employed. The next day a small area of infiltration occupied the centre of the cornea. Two days after this the leucoma-like spot became "surrounded by a grey zone of delicate infiltration, in its turn embraced by a wide area of clear cornea, extending on all sides to the corneal margin." Fine strands of capsule could be seen "running from every point of the pupil's circumference to an area on the posterior surface of the cornea exactly behind the opacity." To ordinary inspection the pupil seemed almost perfectly black and clear. The wound was healed, and the anterior chamber was restored. Twelve days later the cornea was "perfectly clear," the leucoma-like spot having "first assumed throughout the appearance of a grey infiltration and then gradually faded away." The author states that a most painstaking examination of the latter case on the eighth day gave the clue to the cause, and further study of the first one "revealed a similar condition." Being fully cognizant of the well-known fact that prolonged contact of any foreign body against the posterior surface of the cornea may give rise to an opacity of that membrane, he believes that the leaking wounds in his two cases had evidently afforded a chance for shreds of capsule to act in such a way.

The rarity of instances of inherited and acquired syphilis in the same subject, the author tells us, is sufficient excuse for the publication of the third observation—the case of a twenty-three year old negro, who with all of the facial stigmata of inherited syphilis, presented gummy infiltrates in each iris with many small posterior synechiae and "classical, parenchymatous, punctate keratitis." The forehead and the forearms of the subject "were found covered with a papular syphilide." C. A. O.

(11) **Fernandez** seems to have been singularly unfortunate when he has had to deal with opacities of the posterior capsule after extraction. In four cases the operation of needling was followed by detachment of the retina and total loss of vision. He therefore entirely abandoned all attempt to relieve the

condition. Lately he has been compelled by the exigencies of certain patients to resume operations, and has had good results by dividing the capsule by means of a narrow Graefe knife.

HAROLD GRIMSDALE.

(12) The complications which may arise after extraction of cataract, in connection with the capsule, were fully discussed by Collins at a discussion opened by him at the Leicester meeting of the British Medical Association, 1905. The paper he then read, which has previously been abstracted (*see* above No 6), is here published in full, together with illustrations. C. D. M.

IX.—MISCELLANEOUS COMMUNICATIONS DEALING WITH CATARACT.

- (1) Keiper, George F.—Complete absorption of an injured crystalline lens in a man forty-six years old. *Ophthalmic Record*, August, 1903.
- (2) Szily, A. v.—Lenses with double focus. (Die Linse mit zweifachem Brennpunkt.) *Klin. Monatsbl. f. Augen.*, 1903, Band II, p. 44.
- (3) Dunn, Percy.—A case of subacute glaucoma caused by a hypermature cataractic lens. *West London Medical Journal*, January, 1904.
- (4) Menacho.—On the necessity for retaining the bandage after operations upon the eye. (Sobre la supresion del vendaje en las operaciones del globo ocular.) *Arch. de Oftal. Hispano-Americanos*, Junio, 1904.
- (5) Lacaussade. — The differential diagnosis between cataract and glaucoma. (Cataracte et glaucome diagnostic différentiel.) *L'Ophthalmologie Provinciale*, aout, 1904.
- (6) Hartridge, Gustavus.—Unusual opacity affecting the posterior part of the lens and capsule. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 85.
- (7) Dransart.—On cataract in its relations with blindness in the North of France. (De la Cataracte dans ses rapports avec le cécité dans le Nord de la France.) *L'Ophthalmologie Provinciale*, novembre, 1904.
- (8) Schanz, F.—On the acquisition of the power of seeing in people born blind and later successfully operated upon. (Ueber des Sehenlernen blindgeborener und später mit Erfolg operierter Menschen.) *Zeitschrift für Augenheilkunde*, Dezember, 1904.

- (9) Wicherkiewicz.—On the open treatment after cataract operations. (*Sur le traitement à ciel ouvert des opérés de la cataracte.*) *L'Ophthalmologie provinciale*, janvier, 1905.
- (10) Roure. — Two cases of ossification of the lens. (*Deux cas d'ossification du cristallin.*) *Revue générale d'ophthalmologie*, février, 1905.
- (10A) De Wecker.—New attempts to cure cataract without operation. (*Nouveaux essais pour guérir la cataracte sans opération.*) *Annales d'oculistique*, T. CXXXIII, p. 161, mars, 1905.
- (10B) Vinsonneau.—What should be done in cases of diabetic cataract? (*De la conduite à tenir dans la cataracte diabétique.*) *Le Petit Indépendant Méd.*, février, 1905, and *Revue générale d'ophthalmologie*, juin, 1905.
- (11) Fisher, J. Herbert.—Coralliform cataract. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 90.
- (12) Mayou, M. S.—An unusual form of lamellar cataract. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 90.
- (12A) Bargy.—A case of bilateral coloboma of the iris, with double cataract and high myopia. (*Un cas de coloboma bilatéral de l'iris avec cataracte pyramidale double et myopie forte.*) *Ann. d'oculistique*, T. CXXXIV, p. 285, octobre, 1905.
- (13) Méo, J.—A contribution to the study of arterial pressure in cataract. (*Contribution à l'étude de la tension arterielle dans la cataracte.*) *Thèse de Toulouse*, 1905, and *Rev. générale d'Ophtalmologie*, décembre, 1905.
- (14) Theobald.—The success which at the present day attends the operation of cataract extraction, and the causes that contribute to it. *American Journal Med. Science*, January, 1906, p. 26.

(2) In sixteen cases observed by this writer, monocular anisometropia occurred in the course of formation of cataract, i.e., an optical differentiation of the refraction of the nucleus of the lens from the outer layers. Szily also refers to lenticonus posterior, of which he quotes descriptions of thirteen cases. The reason of the refractive anomaly lies in an increase of refractive power of the lens nucleus, not in a diminution of that of the outer layers, which retain their former refraction. The work is well worth reading in the original. (See THE OPHTHALMOSCOPE, Vol. I (1903), p. 61.) A. BIRCH-HIRSCHFELD.

(3) Dunn's case was that of a woman, aged 88 years, who had for long suffered from cataract in the left eye only, the right

being good. She had lately complained of symptoms pointing to glaucoma in the left. 14 days before being seen the left became acutely painful, and on admission the tension was +2 and the eye was in a state of acute glaucoma. Eserine brought the tension down somewhat, but a few days later iridectomy was done and the lens removed with a scoop. There was no loss of vitreous, and 3 months later the vision was 6/12 and J. 4 with correction. The right, but for slight lenticular opacities, remained normal. C. D. M.

(4) **Menacho** comes to the following conclusions : that the objects of a bandage are three in number, *viz.*, protection, occlusion, and compression of the eye. That a bandage is always called for in an eye with increased tension, so as to exercise pressure. That if there is much conjunctival discharge the bandage must be changed frequently. Lastly, that in needling for after-cataract, where the existence of a discharge makes an accident not improbable, it is well to dispense with the bandage, and to bathe the eye every hour for the first day or two after operation. HAROLD GRIMSDALE.

(6) In a patient, aged 54 years, **Hartridge** found a number of opacities radiating from the posterior pole of one lens. They suggested folds in the posterior capsule of the lens rather than opacities of the posterior part of the cortex of the lens. Details of fundus not visible. V. = 2/60.

(7) **Dransart** discusses the etiology and treatment of spontaneous and traumatic cataract. When necessary he operates on immature cases removing the cortex by aspiration and irrigation. He has tried Badal's method of treating incipient cataract with lotions and drops of iodide of potassium and has obtained inconclusive results, although there has been improvement in some cases. He considers that the development of cataract is frequently connected with a default of nutritive activity characterised by hyposecretion of urea, and that it may also be favoured by wearing faulty glasses. He calls attention to the fact that slight blows on the eye may be followed in 5 to 8 months by concussion cataract, and urges that such injuries should be very carefully treated.

R. J. COULTER.

(8) **Schanz** reports a most interesting case of operation for bilateral congenital cataract in a patient, 6 years of age. Previous to the operation the patient could tell only light from darkness. The operation, done on both eyes, consisted in splitting the opaque membrane. After the bandages were removed the sense of vision rapidly developed, and the boy was able to find his way about very soon. The peripheral parts of the field remained defective during the time of observation, and he was rather slow to learn to identify objects by simply looking at

them. These cases ought to be operated on early, within the first year, otherwise nystagmus develops, which the operation does not remove.

A. LEVY.

(9) **Wicherkiewicz** has treated 402 cases of cataract by a modification of Hjort's method. In place of leaving the eye quite open, he covers it with a piece of stiff brown paper which is gummed to the brow, temple, nose, and cheek, but leaves the eyelids quite free. He considers that this (1) protects the eye from dust, bacteria, etc., without pressing on it or interfering with the normal flow of tears; (2) prevents the patient from rubbing or using his eye; (3) shows by getting damp if there is any irritation causing lacrymation. He states that under his new treatment the percentage of bad results has been reduced, convalescence has been more rapid, and such accidents as hemorrhage from the iris, delayed closure of the wound, and detachment of the choroid have been less frequent. He thinks that cases in which there is conjunctivitis which will not yield to treatment can be operated on more safely if they are treated by the open method than if the discharge is confined to the eye by a pad and bandage.

R. J. COULTER.

(10) **Roure** adds two cases to those already published of ossification of the lens. In the first case, a child of twelve years, the exact nature of the cataract had not been suspected, and an attempt was made to remove it by linear incision. It was supposed that the capsule only was calcified. As the result of attempts to penetrate the capsule the cataract became dislocated into the anterior chamber, and was with some difficulty removed after enlarging the wound. The cataract, when examined, was found to be stony hard, had the infantile shape, and was composed largely of phosphates. Bone corpuscles existed in the parts corresponding to capsule and lens. The fundus of the aphacic eye gave a yellowish reflection, due, in the author's opinion, to almost complete ossification of the choroid. In the second patient aged sixteen, the eye was removed. The choroid and lens were both ossified. A bibliography is appended.

ERNEST THOMSON.

(10A) **De Wecker** considers that in many cases cataract is associated with a defect of nutritive activity characterised by a diminished excretion of urea, and advises that patients threatened with cataract should, in addition to wearing suitable glasses, have their urine tested for deficiency in the amount of urea, or of chlorides contained in it, and, above all, for the presence of sugar, and that appropriate treatment should be adopted for any abnormality found. With regard to the possibility of checking the development of a cataract which is already established, by the use of lotions or drops of iodide of potassium, he points out that it is

impossible to come to any definite conclusion on the subject, as a cataract may, without treatment, remain for many years without getting worse. Dealing with the recent attempts to cause incipient cataracts to retrograde and to disappear, although he has not sufficient evidence to justify him in speaking positively on the subject, he thinks it worth while to try a course of twenty intra-capsular injections at intervals of 2 or 3 days each, consisting of $\frac{1}{2}$ -cubic centimetre of a 5% solution of iodide of potassium, to which a drop or two of a 1% solution of acain, or a 2% solution of cocaine should be added to prevent pain. The progress of the cataract should be estimated not only by the ophthalmoscope and test types, but by some subjective method, such as that suggested by Darier, which consists in getting the patient to look at a candle flame about 5 metres from him through a biconcave lens of 30-40 D., when he sees a luminous disc, on which even the smallest opacities of the lens are shewn up, so that he can judge whether they are increasing or decreasing.

R. J. COULTER.

(10B) **Vinsonneau** maintains that the prognosis in diabetic cataract is good both as regards operation and sight. It should be, therefore, treated on the same lines as simple cataract. But before operation it is advisable to place the patient on anti-diabetic treatment, and to apply a "test dressing" the night before the cataract is removed. As regards the operation itself, the author lays stress upon the importance of iridectomy, and the necessity for not dragging upon the iris, nor using force in getting rid of cortical remains.

E. R.

(12A) **Bargy's** patient, a girl, aged 8 years, had the following anomalies in each eye:—(1) Coloboma of the iris downwards and inwards as wide as the pupil at the pupillary edge and involving almost a quarter of the circumference of the iris at its scleral insertion; (2) Flattening of the lens margin with atrophy of the ciliary processes in the region of the coloboma; (3) Anterior pyramidal cataract; (4) Iridodonesis; (5) Refraction estimated at —27 D. through the lens and +14 D. through the circumlental space and coloboma. In the left eye there was also a pigmented temporal myopic crescent.

R. J. COULTER.

(13) **Méo** shows that one may often find amongst persons suffering from cataract some of the signs looked upon as characteristic of arterio-sclerosis. At the same time it is far from proved that senile arterio-sclerosis may be ranked as one of the causes of lenticular opacity. Among 56 cases of senile cataract Méo found tension above the normal in four cases only, and sometimes the tension in these patients was lower than that observed in veritable arterio-sclerosis. It may be concluded from the 56 observations that cataract cannot

be attributed to generalised arterio-sclerosis. From a practical standpoint, however, the study of arterial tension is useful in cases of cataract, since raised pressure may be the forerunner of operative or post-operative accidents, such as intra-ocular haemorrhage.

COLIN.

(14) During the first half of last century, surgeons were well content if failures in their flap operations for cataract did not exceed 20%, but after the introduction of v. Graefe's operation, a definite improvement occurred, although 8% to 10% of failures was not uncommon. Now, the rule is 4% to 5% only.

In a compilation of the results of over 2,000 cataract operations by well-known ophthalmic surgeons of this country and of Europe, made by Frank M. Ring (*Med. Record*, Feb. 23rd, 1895), about half the operations having been done with iridectomy and about half without, the percentage of failures was 3·67. Theobald, in a series of 200 cases, had a percentage of failures of 3·12.

The cause of this greatest success is found primarily in the improved method of operating for senile cataract introduced by v. Graefe, the combined extraction of the present day being the outcome of his modified linear extraction. Next in importance comes Koller's discovery, in 1884, of the anaesthetic action of cocaine. This is of greater importance than the application of the principles of antiseptic surgery to cataract operations, inasmuch as absolute asepsis is practically impossible, the incisions are small, the hands of the operator do not necessarily come in contact with the wound, the ocular tissues are very vascular, and furnish no dead spaces suitable to the development of bacteria, and, finally, the tears are measurably bactericidal. Other factors producing the improvement are skilled nursing, improved hospital facilities, prevention of post-operative accidents by the late Russell Murdoch's protection shield, Ring's and Emerson's masks, &c., and more definite specialisation of eye surgery.

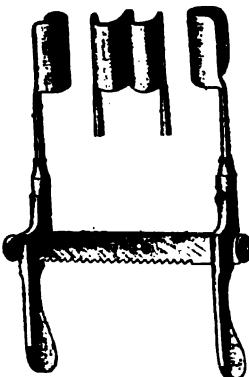
The causes leading to the failures which still remain, for in spite of all efforts 2% of cases after cataract operation are lost by pyogenic infection, are that many cataract eyes are unsound in other respects, and therefore cannot withstand the shock of the operation. Then, the subjects are often old, and of these 1% are glycosuric, 6% are albuminuric, and a much larger proportion have atheromatous arteries. The temperament of the patient is also a very significant factor in producing success or failure. A tractable patient can help the operator considerably and *vice versa*.

ROSA FORD.

X.—INSTRUMENTS.

- (1) Müller, Leopold.—A lid speculum. (*Ein Lidsperrer.*) *Klin. Monatsbl. f. Augenheilkunde*, September, 1905.
- (2) Maddox, Ernest E.—Needles for suture of the conjunctival flap after cataract extraction. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 304.

(1) For upwards of ten years Müller, fearing loss of vitreous, has operated upon senile cataract without a speculum. Yet aseptic considerations suggest that some such instrument should be employed. Müller has therefore devised a speculum (shown open and closed in the illustration), which falls out from between



the eyelids as soon as the patient makes any straining movement.

S. S.

(2) Maddox, who has experimented in the direction of suturing the conjunctiva after extraction of cataract, has had some small, strongly-curved needles made for the purpose. He finds that post-operative astigmatism is increased if too much conjunctiva be included in the suture.

XI.—LOCAL ANÆSTHETICS.

- (1) Barcones.—Stovain. (*Contribucion al estudio clinico de la estovaina.*) *Arch. de Oftal. Hisp.-Amer.*, Oct., 1905.
- (2) Santos, Fernandez.—Stovain. (*La estovaina en nuestra practica oftalmologica.*) *Arch. de Oftal. Hisp.-Americanos*, October, 1905, and *Anales de Oftal.* May, 1905.

- (3) **Hummelsheim, Ed.**—Upon the action of Alypin, a new anæsthetic, upon the eye. (*Ueber die Wirkung des Alypin, eines neuen Anästheticums, auf das Auge.*) *Archiv f. Augenheilkunde*, Oktober, 1905.
- (3A) **Braun, H.**—Novocaine: a new anæsthetic. *Deutsche med. Woch.*, Oktober 19, 1905.
- (4) **Ohm.**—A contribution to the use of Alypin. (*Beitrag zur Verwendung des Alypins.*) *Woch. f. Therapie u. Hygiene des Auges*, November 9, 1905.
- (5) **Wibo, M.**—Alypin, the new anæsthetic. (*L'alypine, nouvel anesthésique.*) *Bull. de la Soc. Belge d'Ophthalmologie*, No. 19, 1905.
- (6) **Landolt, H.**—Upon Alypin. (*Ueber Alypin.*) *Woch. f. Ther. u. Hygiene des Auges*, 18 Januar, 1906.

(1) **Barcones** has used stovain, and is prepared to continue its use under certain reservations. Its value is greatest as subcutaneous injection. For instillation, it is somewhat inferior to cocaine; it is less toxic than the older drug, and therefore its marked vaso-dilatatory action is not able to cause poisoning, although the great increase of the blood-flow through the part carries off the alkaloid into the general circulation. This vaso-dilatation sometimes brings on a considerable oedema of the lids.

HAROLD GRIMSDALE.

(2) **Fernandez** comes to conclusions similar to those reached by Barcones (*see above*).

(3) **Hummelsheim** has compared the action of alypin with that of cocaine upon normal eyes, and finds that as regards anæsthetic effect there is little difference between the two agents. Almost without exception, alypin produces transient vaso-dilatation, which may, however, be avoided by the simultaneous use of adrenaline. Alypin appears to reduce the intraocular tension, a fact that leads the author to suggest its employment in glaucoma. Alypin is also indicated when idiosyncrasy to cocaine exists, and as a local anæsthetic when dilatation of the pupil and interference with accommodation are undesirable. Hummelsheim generally employs a 2% solution of the new anaesthetic, which may be repeatedly sterilised by boiling without suffering deterioration.

S. S.

(3A) **Braun**, in the course of a communication dealing with the newer local anæsthetics, describes novocaine, the chloride of p-aminobenzoyldiethyl amino-ethenol, a stable crystalline substance soluble in water. It is a powerful local anæsthetic, but its transient action places it at a disadvantage as compared with cocaine and alypin. The anæsthesia, however, can be prolonged by

adding one of the supra-renal preparations. Solutions of novocaine can be sterilised by boiling, and keep almost indefinitely. MAX P.

(4) Ohm, after numerous experiments in Professor Froelich's clinique in Berlin, finds that alypin is an efficient local anæsthetic. He noted moderate dilatation of the pupil after the subconjunctival injection of 2·5 divisions of a Pravaz syringe containing a 20% solution of the new agent (= 0·05 grammie of alypin). S. S.

(5) Wibo's experiences with a 5% watery solution of alypin lead him to believe that while its powers as a local anæsthetic equal those of cocaine, it excels the latter in several other respects. Whether dropped into the eye or injected beneath the conjunctiva, the new local anæsthetic never produces unpleasant results. Alypin reduces the intraocular tension, and may be used to replace eserine in the treatment of glaucoma. The solution is perfectly neutral, and may be boiled for ten minutes without undergoing either chemical or physiological changes. S. S.

(6) H. Landolt (Strasburg) after pointing out the disadvantages of cocaine, *viz.*, mydriasis, paralysis of accommodation, action on the corneal epithelium, toxicity, and its reputed effects on tension, remarks that we are seeking for an anæsthetic which shall possess the advantages without the disadvantages of cocaine. Thus we have had eucaine α and β , acoine, holocaine, anæsthesin, yohimbin, &c., presented to us for trial. The newest of these substitutes for cocaine is alypin, which Landolt has used in the removal of foreign bodies from the cornea. The strength employed was 4 per cent., with 10 per cent. of 1 : 1,000 adrenalin. The conclusions he has drawn from his comparison of this solution with a 5 per cent. cocaine solution are the following:—"Alypin is an anæsthetic which acts, in about equal doses, somewhat less strongly and more slowly than cocaine. While the latter has the advantage of at the same time causing anaemia, alypin causes slight hyperæmia. Both drugs have a destructive action on the cornea in certain cases, but it is not yet certain which of the two damages the cornea the oftener. The advantage which alypin has over cocaine is that the accommodation and the pupil are not appreciably influenced, and it has the further advantage, apparently, that in glaucomatous eyes the tension is not raised. Hence its employment in glaucoma operations, and in the removal of foreign bodies from the cornea of patients who must return to their employment at once, and wear no protecting bandage. Alypin is not the anæsthetic which we are seeking for, because it also possesses secondary effects which are undesirable." Landolt also states that in most cases alypin applied to the conjunctiva produces more smarting than cocaine.

ERNEST THOMSON.

XII.—GENERAL ANÆSTHESIA.

Suker, George F.—Scopolamine and morphine anæsthesia in ophthalmic surgery. *Medicine*, January, 1906.

Suker suggests that general anæsthesia by scopolamine and morphine may prove useful in acute glaucoma and in cataract operations upon restless and nervous patients. After the injections have been made, the patients scarcely ever realise that they have been taken from their beds. Post-operative pain is seldom complained of. Indeed, patients are stated "to enjoy peaceful rest all the way from fifteen to twenty-four hours after the operation." A word as to the *technique* of the method may prove useful to readers.— $\frac{1}{50}$ gr. of scopolamine hydrobromate (Merck's) and $\frac{1}{2}$ gr. of morphine sulphate are dissolved in three drachms of distilled water. One Pravaz syringe of this solution is injected into the arm $2\frac{1}{2}$ hours before operation, a process repeated $1\frac{1}{2}$ hour and again $\frac{1}{2}$ an hour before operation. The patient becomes sleepy soon after the first injection, much more so after the second, while at the moment of the third injection he is scarcely sensitive to pain, although his sense of touch is not obtunded. Complete anæsthesia is usually obtained half an hour after the last injection. Should this not be the case, a minute quantity of ether or chloroform will suffice to maintain narcosis for an almost indefinite time, and that without any preliminary stage of excitement such as occurs under ordinary circumstances. Two injections, according to Suker, will often suffice for eye operations, provided one or two drops of cocaine have been instilled into the eye. Although the patient is apparently comatose, yet he is able to turn the eye in any direction when desired to do so by the operator. The muscular relaxation observed even after a single injection should be advantageous from an ophthalmic point of view.

NOVELTIES.

A DOUBLE SAFETY OPHTHALMIC DROP BOTTLE.

BY

J. BURDON COOPER, M.D., B.S., B.Sc., F.R.C.S.E
BOURNEMOUTH, ENGLAND.

The accompanying woodcut represents a safety sterilizable ophthalmic drop bottle (registered) which has been made for me by Messrs. Down Brothers, of London, the construction of which allows of rapid sterilization without the removal either of the rubber cap from the dropper or of the latter from the bottle.

This bottle is of test tube shape, and has a safety tube fused into the neck, which prevents its contents from escaping. The pipette or dropper is ground to fit the bottle accurately, and is provided with a safety tube (*see diagram*) fused to the aperture of the upper bulb. This safety tube prevents any fluid that has been drawn up into the pipette running back into the rubber nipple when the bottle is laid on its side or the pipette everted. The rubber nipple fitted to the upper bulb of the pipette has near its centre a fine longitudinal slit. It occurred to me to utilise this ingenious device of Bunsen, known as the "Bunsen valve," in order to sterilize the interior of the rubber nipple of ophthalmic drop bottles.

In order to sterilize the bottle, it is held slantwise over the flame of a spirit lamp with the curved end of the pipette directed upwards and the contents boiled. The pressure of the steam drives the fluid into the pipette until the curved end is free, and the steam then passes up through the liquid in the pipette, or into the interior of the rubber cap, sterilizing it, and escaping through the Bunsen valve. The valve prevents the



admission of external air to the bottle after it has cooled, so that at the end of the process of sterilization the bottle is entirely free from air, and the atmospheric pressure prevents the pipette from coming out. The tube can be carried in this condition until its contents are required, when pressure on the top of the rubber cap opens the valve, and the pipette can be removed with ease.

The bottles are made up in sets of nine, and are supplied in the following colours:—Blue—homatropine; green—methyl-atropin; ruby—eserin; amber—silver nitrate; yellow—pilocarpin; purple—atropin; light blue—dionin; light green—fluorescein; flint-glass—cocaine.

The whole set, comprising nine bottles, spirit bottle, and small spirit lamp, is supplied in two leather cases, $3\frac{1}{4}$ inches square, which is easily carried in the pocket. Each case is provided with compartments for five bottles, the selection of which is left to the surgeon, but the most useful is one comprising cocaine, atropin, eserin, silver nitrate, spirit bottle, and lamp.

As most of the fluids used are alkaloids, the bottle is readily cleansed by means of a little strong nitric acid, which forms a

salt easily soluble in water. The deposit occurring in solution of cocaine mixed with adrenalin is difficult to remove, but by allowing the acid to stand for some time in contact with it, with perhaps boiling it occasionally and washing well with water, it is possible to remove the greater part of it.

REVIEWS.

**La Surface de Section des Plaies Faites en vue de l'Extraction de la Cataracte et de l'Iridectomie.
(Travail de la Clinique ophthalmologique de l'Hôtel Dieu.)**
By Dr. MARC LANDOLT. Paris : G. Steinheil, éditeur.
1905 ; pp. 130.

In this exhaustive and interesting little monograph, Dr. Marc Landolt gives a full and reasoned account of the various forms of incision by which the globe is opened in the operations named. We all knew that the internal wound differed from the external visible wound, but it is doubtful whether many had a very clear idea to what extent the difference went. After a perusal of this work, such ignorance is no longer permissible.

Dr. Landolt divides his subject into two chief parts: first, a study of the incisions themselves, and, second, a study of their influence on the after-course of the case. The study of the incisions is the most extensive part of the work; they are divided, according to their nature—into “simple,” in which the cutting edge works approximately in a single plane, and “complex,” in which the flap is cut by incisions in two or more planes. The simple incisions include the linear, following a great circle on the eye, and the flap-forming. By a series of clear and well-arranged diagrams, the author shows how much the inner incision differs from the external in each case. He himself is clearly in favour of a simple flap incision, and in the latter part of the work he shows that the coaptation is better after a section of this kind than after a linear incision. It is certain that the direction of the wound-canal has a great influence on the chance of a prolapse. In the case of a linear wound, the intra-ocular pressure acts, at the greatest possible advantage, to separate the edges. Where there is a flap, the pressure acts at less advantage, and since the surfaces of the canal are larger, the tissues being cut more obliquely, the wound will be held closed more firmly and adhesion of the surfaces will be more rapid. “Anatomical and pathological study seems to show that a section heals better the more extended its surface and the less it encroaches on the cornea; such a section gives also the best optical results.”

Dr. Marc Landolt has produced a work of real value and merit on a point which has been allowed to remain somewhat obscure.

HAROLD GRIMSDALE.

The Crystalline Lens in Health and Cataract. Address delivered in the University of Oxford, July 10th, 1905, by SIR WILLIAM JOB COLLINS, M.S., M.D., F.R.C.S. London: Adlard & Son, Bartholomew Close; 1905; pp. 20. Price 6d.

After an account of the history and treatment of cataract from earliest times, Collins discussed the morphology and development of the lens, with the various vestigial anomalies resulting from failure thereof. The chemical composition of the healthy lens he estimates at 70% of water and 30% of solids, the percentage of water remaining the same in the child, the adult, and in old age; the percentage in cataractous lenses being 62% of water and 38% of solids, and tending, as a rule, to weigh less than the healthy lens. He finds that the lens is endowed with endless growth, the weight at birth being 120 milligrammes, and at the age of 80, 260 milligrammes, the increased expansion changing the spheroidal-shaped lens at birth into an ellipsoid in the adult. Contrary to the usual teaching, that increasing solidity of the lens accounts for progressive loss of accommodation and presbyopia, Collins attributes it to progressive increase in bulk, and gives a table in support of this view. His theory is that from the increased size of the lens there is less room in the circumlental space for the lens to expand in accommodation. As regards "black cataract," he concludes that the pigment is a product of cell activity like that in the skin, at any rate it differs from blood pigment. Cataracts with myopia and those beginning at the posterior pole are slower in reaching maturity than those which start in the nucleus or anteriorly. Finally, he suggests an ætiological classification of cataracts as the most logical, e.g., (1) Developmental causes, (2) Cachectic, (3) Secondary, (4) Vascular, (5) Nervous causes, and (6) Traumatism.

P. A.

C O R R E S P O N D E N C E .

While *The Ophthalmoscope* will at all times welcome correspondence from its readers, the Editors do not hold themselves responsible for any views expressed in this column.]

"LID-CLOSURE PUPIL REFLEX."

To the Editors of THE OPHTHALMOSCOPE.

SIRS,

I note that Dr. A. J. Ballantyne in his paper "Two cases of lid-closure pupil reflex" (*THE OPHTHALMOSCOPE*, February, 1906)

considers the phenomenon to be a true associated movement, and is not in favour of the view that it is due to any mechanical cause. With this I quite agree, and I should only like to point out that a case which I showed to the Ophthalmological Society in October, 1905, suffices to dissipate whatever doubt may be left on that point. It was a patient with ophthalmoplegia interna of specific origin, and in this case contraction of the pupil occurred not only on *forcible* closure of the lids, but even if the patient closed his eyes as gently as possible, as if he was going to sleep. I may add that it was just on account of this exaggeration of a well-known phenomenon that I brought the case before the Society, and that it helped to illustrate my thesis, namely, that a pupil paralysed in one or more senses often responds to another stimulus in an exaggerated manner.

I am, Sirs,

WIMPOLE STREET, W.

Feb. 1st, 1906.

Yours faithfully,

C. MARKUS, M.D.

"COLOURED VISION AFTER CATARACT EXTRACTION."

To the Editors of THE OPHTHALMOSCOPE.

SIRS,

I think an explanation of the cyanopsia after the extraction of cataract may be found in the fact that in ordinary senile cataract there is usually a distinctly yellow or amber colour. For some time, therefore, the patient has seen everything through a yellow medium, and when this is removed objects naturally appear to him as though tinted with the complementary colour—blue. This, at least, is the only explanation which I have ever heard given of a familiar condition. I had not been aware until Major Elliott's paper appeared (*THE OPHTHALMOSCOPE*, January 1, 1906) that the symptom ever occurred except in senile conditions.

Yours, etc.,

EDINBURGH,

February, 1906.

WILLIAM GEORGE SYM, M.D.

NOTES AND ECHOES.

The
Ophthalmoscope.

THE present number of *THE OPHTHALMOSCOPE* is devoted mainly to Cataract.

The original articles include those from the pen of such masters of the subject as Sir Anderson Critchett

Lieut.-Col. E. F. Drake-Brockman, Major H. Herbert, Mr. Henry Power, and Mr. C. Devereux Marshall. A glance at the abstracts will show how much important work has lately been accomplished, more especially perhaps in India and on the Continent of Europe. Amongst these articles may be mentioned Major H. Smith's work on extraction of cataract in its capsule, the papers of Mr. E. T. Collins, and of Dr. Hermann Knapp respectively upon the capsular complications of cataract; and last, but assuredly not least, the weighty articles dealing with the causation of cataract, by Drs. Pfister, Peters, Zirm, and others. With such a wealth of observation at hand readers will recognise that the present is a particularly opportune moment for dealing with cataract in its many bearings. It may, perhaps, be added that in the course of the year we purpose to publish a special number of THE OPHTHALMOSCOPE dealing with another practical subject, namely, detachment of the retina.

* * * *

DEATH has been busy in our ranks of late.
Obituary. Dr. Swan M. Burnett died suddenly, of

œdema of the lungs and heart failure, at

Washington on January 18th, aged 58 years. This distinguished ophthalmologist was born at New Market, Tenn., in 1847, and graduated at Bellevue Medical College in 1870. His numerous appointments included the professorship of ophthalmology in Georgetown University and in the Washington Post-Graduate Dispensary and Emergency Hospital. He was also attached to Providence and the Children's Hospital, Washington. Dr. Burnett published a volume on "Colour Vision" in 1884, and one on "Astigmatism" three years later. His casual contributions to the literature of ophthalmology were both numerous and important. It is interesting to recall the fact that in 1873 he married Mrs. Frances Hodgson Burnett, the talented authoress of "Little Lord Fauntleroy," "A Lady of Quality," "That Lass o' Lowries," and of several other famous books. The death is announced from Paris of Louis de Wecker, aged 83 years. Born at Frankfort-on-the-Main in 1832, Wecker pursued his earlier medical studies at Wurzburg. He afterwards became Desmarres' assistant in Paris, and studied with v. Graefe in Berlin. In 1861 he obtained his Paris degree, and purchased from Deval the well-known clinic in the Rue Visconti. A few years later he attended Léon Gambetta, one of the most interesting statesmen who has ever flitted across the troubled stage of French politics. de Wecker

removed an eye from his distinguished patient. In 1870, de Wecker left the Rue Visconti for the Rue du Cherche-Midi, where he established one of the largest and best-appointed eye clinics in Paris. He continued his devoted services during the darkest days of the siege of Paris, and was nominated surgeon to the national guard. de Wecker's name and fame are known in every part of the world where ophthalmology is practised. He was the author of *Traité des maladies des yeux* (1863), of *Traité des maladies du fond de l'œil* (1870), of *Thérapeutique oculaire* (1878), of *Chirurgie oculaire* (1879), and, finally, in conjunction with Landolt, of that monument of patient research and prolonged labour, the *Traité complet d'ophthalmologie* (1882-1885). He wrote numerous articles in the periodical press, especially upon such subjects as cataract extraction, iridectomy, and jequirity. de Wecker introduced sclerotomy as a cure for glaucoma, and the operation of tattooing as a means of concealing leucomata and of improving sight in cases of the kind. His name will always be associated with his *pince-ciseaux* for the division of after-cataract, and with his double strabismus hook for advancement of the recti tendons. A master of ophthalmology has gone from us. May he rest in peace! The deaths are also announced of William Wallace Gardner, of Springfield, Mass., aged 80 years; of Jerosey Kostenitsch, director of the St. Petersburg Eye Hospital, aged 63 years; of Emil von Wolfring, at the age of 73 years, once professor of ophthalmology in the University of Warsaw; of Friedrich Hosch, professor of ophthalmology at Basle, at the age of 58 years; of Adolph Sachsalber, professor of ophthalmology at Gratz, aged 41 years; of Joseph Delhaise, of Liége, aged 33 years. The last name to be included in our melancholy list is that of Dr. Albéric Rogman, of Ghent, Belgium, a well-known writer on ophthalmological subjects.

* * * *

News Items. His Majesty the King has been graciously pleased to make Sir Anderson Critchett Commander of the Grand Cross of the

Royal Victorian Order. Upon Dr. Paul Römer has been bestowed the title and privileges of an extraordinary professor of ophthalmology in the University of Wurzburg. Dr. Hermann Kuhnt has been appointed Rector of the University of Königsberg for the year 1906-1907. Dr. Walter Küsel has succeeded Dr. Herbert Adolph as surgeon to the University Eye Clinic of Königsberg. Dr. A. Agababor has been made professor of ophthalmology in the University of Kasan. Dr. Cangc has been nominated professor of clinical ophthalmology in the

medical school of Algiers. Dr. Leopold Heine, privat-docent, has been elected professor of ophthalmology in Breslau. Dr. W. B. Inglis Pollock has been appointed pathologist and bacteriologist to the Glasgow Eye Infirmary.

A movement is on foot, as we gather from *Nature*, to erect a monument to the memory of the late Professor Abbé, of Jena. Subscriptions should be sent to Dr. G. Fischer, of Jena.

Readers will recollect that the Graefe Medal was awarded in August last to Professor Hering, of Leipzig, in recognition of his work in physiological optics. It is now announced that members of Heidelberg Ophthalmological Society may obtain bronze replicas of the medal at a cost of about eight marks on application to Professor Wagenmann, of Jena.

The authorities of the Michigan University Hospital have decided to erect, at a cost of \$14,000, a new building for the better housing of patients suffering from affections of the eye, ear, throat, and nose.

The following is the list of officers of the section of ophthalmology of the annual meeting of the British Medical Association to be held in August next at Toronto, Canada :—

OPHTHALMOLOGY.

President : Robert Marcus Gunn, London.

Vice-President's : George Herbert Burnham, Toronto ; John W. Stirling, Montreal ; Joseph Nelson, Belfast ; Arnold Lawson, London.

Honorary Secretaries : James M. MacCallum, Toronto ; Duncan N. McLennan, 126, Bloor Street W., Toronto ; Frank Pearson Skeffington Cresswell, 24, Windsor Place, Cardiff.

* * * *

Awards. THE Paris Academy of Medicine has recently made two awards of especial interest to ophthalmic surgeons. The first, the Laborie Prize value £200, to Dr. Felix Lagrange, of Bordeaux, for his well-known *Traité des Tumeurs de l'œil, de l'orbit, et des annexes*; the second, the Meynot Prize, value £104, to Dr. Scrini, for his admirable book, *Précis de Thérapeutique Oculaire* (1904). The Königliche Gesellschaft der Wissenschaften has awarded 800 marks to Professor Waldemar Voigt, of Göttingen, for researches on the effect of an electric field on the visual apparatus, and 400 marks to Dr. E. Hertel, of Jena, for his studies on the physiological effects of the chemical light rays.

* * * *

A GRACEFUL compliment has been paid to **Bowman Lecture, 1907.** our French *confrères* in asking Dr. Emil Javal, the author of that pathetic human document, "Entre Aveugles," to accept the Bowman Lectureship of the Ophthalmological Society of the United Kingdom for next year. It is to be hoped that Dr. Javal will see his way to accept the proffered distinction. *L'entente cordiale* has clearly extended beyond the ranks of the London County Council into those of the ophthalmological world.

* * * *

**The Optician
Question.**

THE sight-testing optician, or "optologist," to give him the name he hankers after, has at the present moment two parliamentary Bills in evidence, one promoted by the Spectacle Makers Company (the S.M.C.) and the other by the British Optical Association (the B.O.A.). Although differing in detail the principle (or want of it) of these two precious Bills is identical, namely, to legalise sight-testing by medically unqualified practitioners. It is perhaps as well for the medical profession that there is a very pretty little quarrel between the promoters. The British Optical Association object to the control of the trade passing into the hands of the other body, and are accordingly doing all they can to push their own Bill and to oppose that of the Spectacle Makers' Company. *The Optician and Photographic Trades Review*, however, which favours the British Optical Association Bill, goes far beyond its book when it says "the Ophthalmological Society of the United Kingdom does not deem it expedient to oppose the British Optical Association's Bill" (February 2, 1906, p. 570). From this unauthorised statement it goes on to argue that "the opposition of a most important section of the medical profession—viz., the oculists—will not be directed against the British Optical Association's Bill." The journal in question is singularly ill-informed. In point of fact, a sub-committee of the Council of the Ophthalmological Society is now going carefully into the two Bills, and we shall be much mistaken if a strong opposition be not speedily organised by the Society to any proposal to legalise sight-testing on the part of the British Optical Society, the Spectacle Makers, or any other non-medical body. It is to be hoped that the dangerous proposals of these bodies or corporations may never find their way into the British statute book. If these greedy and aggressive trade interests should by any misfortune secure the protection of Parliament, future generations will most certainly be called upon one day to send back spectacle

makers to spectacle making, and to restore the care of the sight to medical men. We need concerted and determined action to put an end to these encroachments, alike dangerous to the public and damaging to the profession. Why does not the General Medical Council interfere? If sight-testing by laymen does not concern the Council, let us have a Council on a fresh basis, empowered to look after professional interests.

* * * *

Dangers of Medical Practice.

THREE recent cases emphasise the danger now and then incurred by ophthalmic surgeons in the performance of operations.

The first case concerns an American, Dr. George F. Suker, of Chicago, who was sued by a certain Abraham Bernstein on the ground that this gentlemen of Jewish patronymic had been blinded as the result of an operation. The damages were laid at \$10,000. The court found that there was no case against Dr. Suker, who had treated the man gratuitously for two years. It was indeed proved that Dr. Suker's treatment had resulted in some improvement in the plaintiff's sight! Could ingratitude go farther? The second action was brought in the Whitechapel County Court against our own countryman, Mr. R. Marcus Gunn, by a blind man, "very tall and gaunt and grim," to quote the words of the newspaper report of the proceedings. The plaintiff, who had passed under the various *aliases* of "Aaron Goldenfeld," "Schleifestein," and "Aaron Collins," alleged that his sight had been destroyed by Mr. Gunn's negligence. Two operations had been performed at Moorfields Hospital for high myopia. The alien of many names was non-suited, and Mr. Gunn, very generously as it seems to us, declined to ask for costs. A third case, reported in a recent number of the *Wochenschrift für Therapie und Hygiene des Auges*, did not end so happily for the ophthalmic surgeon. The facts follow:—A servant maid sued Dr. V. F., oculist, for compensation on the ground that she had been disfigured and her sight injured by an unsuccessful operation. 10,000 kr. were demanded as compensation. She further claimed a monthly pension of 80 kr. and the return of the fee paid for operation, 216 kr. In support of these claims, the plaintiff pleaded that she was a minor and that the consent of her parents had not been obtained and also that she had not been made aware of the possible results of surgical interference. The case went against the surgeon, who was ordered to pay the girl 5 kr. per month for life, 500 kr. compensation, and to refund the operation fee. On appeal, a higher Court decided that the monthly payments should extend over five years only. The

President, in giving judgment, said that the medical man was at fault, inasmuch as he had undertaken an unnecessary operation without obtaining the patient's consent and without acquainting her with the possible results. These three cases emphasise the somewhat obvious fact that all ophthalmic surgeons should join a Medical Defence Union. The third case suggests an extension of the functions of that and similar protection bodies. They might organize a guarantee fund on much the same lines as those adopted by commercial corporations. By payment of a small percentage yearly any surgeon could then have at his call a given sum to be expended in the payment of costs or damages incurred in actions at law of the kind touched upon above.

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EXTIRPATION OF THE LACRYMAL SAC.*

BY

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Disease of the lacrymal sac in most cases is secondary to disease about the inferior meatus of the nose, causing obstruction to the lower end of the nasal duct, retention of discharge in the duct and lacrymal sac, and subsequent inflammatory changes in the lining membranes of these passages. Before any attempt be made to cure these lacrymal cases locally, the nose should be examined, and if the trouble has been of short duration, nasal treatment is often all that is required.

Historical.

Destruction of the lacrymal sac dates back at least 1,800 years. Celsus, who probably had no knowledge of the

*A communication read at the Harveian Society, London, October, 1905.

sac, in cases of lacrymal fistula cauterised freely down to the bone, after removing the unhealthy tissues around the opening. His results were good, as no doubt at the same time the lacrymal sac was destroyed. His treatment of chronic inflammation of the lacrymal sac, however, was very different. He describes the symptoms of chronic mucopurulent discharge from the conjunctival sac, and his method of treating it. He believed that the discharge came from the veins of the temple, and to make these veins prominent he tied a ligature round the patient's neck, marked the veins with ink, then loosing the neck cut the veins, and when sufficient blood had flowed he cauterised the veins lightly in the temporal region, but deeply over the frontal bone, so that a scale separated from the bone. He describes also how the Greeks for this disease were accustomed to cut the skin of the head in nine lines, two straight lines on the occiput, one transverse above these, then two above the ears, one also transverse between them, and, lastly, three straight lines between the top of the head and the forehead.

Celsus appears to have been quite satisfied with the result of this drastic treatment. If the patient was no better afterwards, he said that the discharge evidently came from the veins between the brain and the skull, so that the case was beyond treatment.

Galen and Paul of Ægina both advocated the making of a false passage through the lacrymal bone into the nasal cavity, by means of the actual cautery, the lacrymal sac being destroyed during the process.

In 1724, Platner¹ brought forward extirpation combined with false passage into the nose. The operation soon died out. An unsuccessful attempt was made by Rosas in 1830 to revive the operation. In more recent literature, up to 1868, it was mentioned by Arlt and de Wecker and practised by Mooren, who did not recommend it.

At the 21st Ophthalmological Congress at Heidelberg in 1868, Berlin² read his important paper. His first case was a patient, aged 65 years, with chronic dacryocystitis. The sac was opened, and the incision in the skin and mucous membrane elongated above and below, the posterior wall of the sac was seized with forceps with the idea of complete removal. This was found to be impossible, and the membrane was removed piecemeal. His second case was that of a girl suffering from congenital syphilis and bilateral dacryocystitis, the distended lacrymal sacs being surrounded by much thickened subcutaneous tissue. Both lacrymal sacs were removed, as in the first case. Healing was very slow, *viz.*, 31 days on the left side and 40 on the right. Some weeks later the scar on the left side gave way, and a lacrymal fistula resulted.

In 1867, Dr. Hägger, of Stuttgart, had two cases. His

operation differed from that of Berlin in one detail only. After opening the sac, he packed it with sponge, and completed the extirpation 24 hours later.

From this date, till Schreiber's paper³ in 1881, very little was done. Schreiber strongly advocated the operation in all cases of incurable dacryocystitis with stenosis of the nasal duct, also even with a patent duct when the mucous membrane of the sac shows much polypoid thickening, and, lastly, in cases of lacrymal fistula, especially when the skin in the neighbourhood of the opening was much scarred. He described the operation introduced by von Graefe, in which the sac was to be dissected out without opening it.

From this time the operation was performed in Germany more freely, and, as a result, a mass of literature, almost entirely Teutonic, has now accumulated. I have no doubt that extirpation of the lacrymal sac is performed far too seldom in this country. At any ophthalmic hospital patients may be seen who have been attending for months and even years, with chronic dacryocystitis and all its dangers and discomforts, who might be relieved permanently of their trouble if the operation were performed. The particular dangers I refer to are hypopyon-ulcer and *ulcus serpens*, both so commonly associated with dacryocystitis, and so often resulting in loss of sight in the eye affected.

Anatomy.

The lacrymal sac is about 15 mm. in length, and, when distended, from 8 mm. to 10 mm. in diameter. It is lined by cylindrical epithelium, usually in two layers, resting on a basement membrane. Beneath this membrane is a layer of lymphoid tissue. There is no muscular coat, but elastic fibres are abundant. The sac is simply the upper dilated extremity of the nasal duct, and lies in the bony hollow between the anterior and posterior lacrymal crests, to which it is bound down by a fibrous expansion from the internal palpebral ligament.

Indications for Operation.

I. LACRYMAL FISTULA.—Any attempt to cure a lacrymal fistula without removing the sac is almost certain to result in failure.

II. CHRONIC DACYROCYSTITIS which does not respond to simple measures. The usual treatment is to attend, first, to any nasal obstruction, and, then, to slit up the lower canaliculus, wash out the sac with protargol or argyrol, and to probe the duct. In those cases in which no marked improvement has resulted after

three months' treatment, removal of the sac is advisable. With regard to the injection of protargol, when freshly made up, this preparation is extremely active. Orbital cellulitis, with total loss of sight in the eye, resulted in one case from the injection into the lacrymal sac of a 33% solution of protargol compounded one hour previously. Prolonged treatment with protargol may also produce intense staining of the conjunctiva.

III. The question of operation when a patient is suffering from HYPOPYON-ULCER or from ULCUS SERPENS ASSOCIATED WITH DACRYOCYSTITIS is more difficult. Hertel³ advocates operation only when there is much thickening of the sac and much muco-purulent discharge. In Kuhnt's opinion⁴ extirpation should also be performed, even in the milder cases ; others maintain that sealing the canaliculi with the cautery is sufficient. Wagenmann points out that, in cases where bilateral dacryocystitis is present, and an eye is already lost from ulcus serpens, the necessity of extirpation of the sac on the other side is urgent, and in this view everyone will agree.

IV. AS A PRELIMINARY TO OPERATIONS ON THE GLOBE WHEN DACRYOCYSTITIS IS PRESENT. Even if apparent cure results from the ordinary treatment of washing out and probing, it is unsafe to operate on these eyes without first removing the lacrymal sac.

V. In cases of CARIES OF THE ETHMOID WITH DACRYOCYSTITIS, excellent results have followed the removal of the large dilated sacs, with as much of the dead bone as possible.

The operation.

There are two chief methods of procedure : 1. To make the incision through the conjunctiva. 2. To make a skin incision.

1. The former method is advocated by von Hoffmann⁵, chiefly on account of the freedom from haemorrhage and the absence of a visible scar. He slits up the canaliculi and dissects them up as far as their junction with the sac. The canaliculi are then drawn outwards and a crescentic incision made at the inner angle at the junction of the skin and conjunctiva. A careful dissection is now necessary behind the internal palpebral ligament to expose the lacrymal sac ; it is freed from the palpebral ligament in front and from the bone behind and to the inner side, and is then drawn outwards. The dome can now be separated from the overlying tissues by means of blunt-pointed scissors. Finally, the sac is drawn upwards and divided as close as possible to its junction with the nasal duct.

This operation is very much more difficult than von Hoffman would have us believe. In the cases in which removal of the sac is necessary, the tissues are much matted together, and

separation, even by the open operation, very difficult. In the dead subject, no doubt, a normal sac could be removed without much difficulty by this method.

2. The better and more usual method of removing the sac is through a skin incision, and many varying opinions have been expressed as to the exact position of this incision. One set of operators advocate an incision which passes vertically midway between the caruncle and the anterior lacrymal crest. This really means that the incision immediately overlies the swollen sac. It is the method advocated by Schreiber¹, and was that usually adopted by von Graefe. In the hands of an inexperienced operator it commonly results in the lacrymal sac being opened early in the operation.

A better incision is one more to the nasal side, the surgeon taking the anterior lacrymal crest as a landmark, and cutting down directly upon this ; the sac will then lie immediately to the outer side of the incision in the bony hollow behind the crest.

Kuhnt¹ in 1888, published the following directions.—The position of the anterior lacrymal crest is made out and the crest exposed by an incision, which commences about 4 mm. above the internal palpebral ligament, and passes downwards for 20 mm. to 25 mm. along the margin of the orbit. The incision extends down to the bone in its whole extent. The palpebral ligament must be divided and the capsule of the lacrymal sac incised along the anterior lacrymal crest, when the sac itself will come into view. The inner wall of the sac must be separated from the periosteum, and then with the scissors freed from above and to the outer side. Careful dissection is required for the separation of the posterior surface, and for this also the blunt-pointed scissors are of the greatest assistance. The sac is now dragged upwards so as to withdraw a portion of the mucous membrane of the nasal duct, which is divided and the sac is free. The wound is closed with 2 or 3 stitches, and a small drainage tube inserted. If Kuhnt's directions are followed, it is almost impossible to miss the sac, as it will lie immediately to the temporal side of the incision. Fairly profuse haemorrhage interferes considerably with the operation.

Cirincione has improved somewhat upon Kuhnt's method by removing the whole of the mucous membrane of the nasal duct. His preliminary incision is longer and commences about 10 mm. above the internal palpebral ligament, and then passes downwards over the anterior lacrymal crest, and curves along the margin of the orbit to the junction of the inner and middle third of the inferior border of the orbit. The incision will be therefore about 40 mm. in length. Having separated the dome of the sac, as in Kuhnt's operation, Cirincione then proceeds to separate the mucous canal of the nasal duct from the periosteum ; this part of

the dissection is almost impossible without a special knife. The shaft of the knife is bent twice at a right angle, so that the blade is parallel to, but at a little distance from, the plane of the handle. Both edges are cutting, and the point is rounded. In disease without bony changes the mucous membrane of the nasal duct can be separated easily by means of this knife to its lowermost limits, and the whole structure, sac and mucous duct, drawn away together. When changes have occurred in the bony duct it will be impossible to remove the mucous membrane in this manner, and the upper part should be excised and the remaining portion destroyed by the galvano-cautery. The canaliculi may be sealed by the cautery, the wound in the skin sutured, and firm pressure applied. Aubaret¹³ proposes that after removal of the sac the cavity should be drained by removal of part of the lacrymal bone. Cirincione in criticising this, remarks that if the sac be removed properly, no drainage is necessary. When the canaliculi are cauterised, there is no fear of suppuration, and union is always by first intention.

Toti advocates the resection of a piece of bone, to include part of the nasal process of the superior maxilla and the entire breadth of the lacrymal fossa. The nasal mucous membrane is thus exposed, a round opening is made in the inner wall of the lacrymal sac and a similar opening to correspond in the exposed nasal mucous membrane. This method differs from that of Aubaret in the formation of a permanent opening, whereas Aubaret only desires to ensure drainage whilst the wound is healing. Aubaret also removes the sac; Toti does not.

Axenfeld^{9 & 10} has made the operation somewhat less difficult by the introduction of two special retractors, the smaller invented by himself, and the larger by Müller; the latter is particularly useful in controlling the venous haemorrhage. Axenfeld calls his operation the subperiosteal method. It resembles that of Kuhnt, except that the incision is about 3mm. in front of the anterior lacrymal crest, and that at this place he elevates the periosteum and separates it from the bone as far back as the posterior lacrymal crest. The periosteum is there divided with scissors, and the extirpation completed as in Kuhnt's operation. In this case the sac is removed with the subjacent periosteum.

It would be of great advantage to the operator if the sac could be kept firmly distended during the operation. Many suggestions have been made in this direction: Silex⁶ advised that the lower canaliculus be slit up, and the sac packed with iodoform gauze. Holmes⁵ suggested the injection through the canaliculus of starch coloured with iodine. Gelatine has also been tried, and more recently paraffin, with a melting point of 110°F., has been injected.

*For abstract see THE OPHTHALMOSCOPE, Vol. iii. (1905), p. 463.

Of these methods the last probably will eventually prove to be the best, but up to the present time it has not given satisfactory results in the hands of most operators.

Results.

It is rare for patients to complain of epiphora after removal of the lacrymal sac. This is rather surprising, since the physiologists would have us believe that tears, even under normal conditions, are constantly passing down the tear passages.

There are two explanations possible : I. That the lacrymal gland ceases to secrete normally after removal of the lacrymal sac ; II. That under normal conditions tears are not constantly passing down the tear passages.

I am convinced that the latter is the true explanation, and that secretion only takes place either under emotion or after reflex irritation, chiefly through the first division of the fifth cranial nerve, such as exposure of the eye to a cold or hot draught, foreign bodies in the conjunctival sac, and inflammation of the eye, conjunctiva, or lacrymal apparatus.

There is still considerable doubt as to the exact innervation of the lacrymal gland. It is supplied certainly by fibres of the lacrymal branch of the ophthalmic division of the fifth cranial nerve and by the sympathetic. It is probable that the fibres come by means of the seventh from the nucleus of the glossopharyngeal (Parsons).

Pathology.

The organisms commonly found in the pus are streptococci in acute lacrymal abscess, and staphylococci and pneumococci in the chronic conditions ; occasionally bacillus coli communis and sarcinae, rarely actinomycetes.

Many of the lacrymal sacs after removal, when examined under the microscope, show the appearances typical of tuberculosis.

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ANTE-PARTUM OPHTHALMIA

(With an Account of Seventeen New Cases.)

BY

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Cases in which babies are born with symptoms of ophthalmia have hitherto been looked upon as extremely rare. The truth of this view may, however, be doubted. It is probable that they occur more frequently than is generally thought, since a study of the literature reveals 35 recorded cases*, while in the present communication we are able to adduce notes of 17 additional cases, met with in the practice of one of us. These numbers include seven, in which the symptoms developed within twenty-four hours after birth, a period which for present purposes we take as a minimum incubation period. At the same time, these seven cases in all likelihood belonged to the same category. In patients inoculated with gonorrhœal pus for the cure of pannus, Bellouard (*Thèse de Paris*, 1892) noted an invariable interval of two and-a-half to three days before the slightest sign of inflammation as regards the eyes became evident. He suggests that this period may be considerably shortened in a new-born child, and quotes Nieden's case (*Klin. Monatsbl. f. Augenheilkunde*, T. 25, p. 353) of a child born in a caul, who developed ophthalmia a day later, as an example of a twenty-four hours' incubation period. But Nieden's case, after all, may have been an instance of inoculation after birth. As well known, however, the majority of cases of ophthalmia neonatorum occur on the third day after birth, a fact pointing to a period of incubation identical with that of older subjects. The text-book statement that in infants this period varies from "a few hours" to two or three days is probably due to the inclusion of instances of *ante-partum* infection, and indicates, not a varying period of incubation, but the much more widely-spread occurrence of so-called "congenital ophthalmia" than has been realised up to the present. In taking twenty-four hours as a minimum incubation period, it will at once be seen that we make a large allowance for any possible unusually rapid action of the gonococcus in newly-born children.

The 52 cases (35 in literature and 17 of our own) that form the basis of the present communication doubtless merely repre-

*Since this paper was written we have found two cases of ante-partum ophthalmia by Wintersteiner (*Wiener klin. Wochenschrift*, 1904, No. 37), thus raising the number of the reported cases to 37, instead of 35, as stated above. Details of Wintersteiner's first case are scanty; while in the second the membranes ruptured the day before birth.

sent a mass of unrecorded material. It may be hoped that their publication, by directing further attention to the subject and by emphasizing the main points that need investigation, may lead to a definite conclusion as regards the ætiology of the condition, which is interesting from more standpoints than one.

We may at once define our position by saying that by the expression "*ante-partum ophthalmia*" we imply an inflammatory affection of the conjunctiva produced while the foetus is still in the uterus by the infection of a micro-organism, the incubation period of which has elapsed, completely or partially, before the baby comes into the world. In the former case, signs of inflammation are actually present at birth, while in the latter they appear within a post-natal period, shorter than any accepted incubation period of the micro-organism.

It would be the merest truism to say that all inflamed eyes in babies are the outcome of microbic infection. The gonococcus is the commonest micro-organism in such cases and the easiest to identify bacteriologically, but others are now and then present, as pneumococci (II. 7, 17) and bacillus coli communis (II. 5). The same considerations as to causation, however, apply equally to all of them, so that the cases may be analysed *en masse* without impairing the validity of the argument.

The details of each of the 35 reported cases, which unfortunately are often somewhat scanty, are appended to the present communication (Table I), and analysed according to the several headings :—(a) time before birth when membranes ruptured ; (b) circumstances attending labour ; (c) condition of the child ; (d) state of the eyes ; (e) bacteriology ; (f) condition of mother ; (g) course of the ophthalmia ; and (h) general remarks.

The 17 new observations, which it is the main object of this communication to place on record, are similarly analysed in a second table (Table II).

The total material available, therefore, amounts to 52 cases—that is, 17 of our own (Table II), and 35 reported by other writers (Table I). Can we deduce from this enquiry a theory to account in anything like a satisfactory way for the origin of cases of so-called "congenital ophthalmia"?

The simplest and most obvious explanation is that the causative microbe, be it the gonococcus or otherwise, has gained entrance to the conjunctival sac through membranes that have been ruptured some considerable time before birth of the baby. The period, as we have hinted before, should not be less than twenty-four hours. This may actually have happened in 12 of the 28 cases (44·5 per cent.) in which the time of rupture is mentioned.

There yet remain 16 cases (55·5 per cent.) to be explained in which less than the minimum incubation period (24 hours) of the gonococcus elapsed between the rupture of the membranes,

on the one hand, and the discovery of the inflammatory symptoms in the eyes, on the other. To account for some of these, which amount to rather more than one-half of the recorded cases, several suggestions, briefly epitomised below, have been advanced. (1) It has been suggested that the increased warmth of the conjunctival sac *in utero* may shorten the usual incubation period of the gonococcus. The optimum temperature for the growth of the gonococcus is from 35° C. to 37° C. (Foulerton), and the *ex-utero* temperature, 35·5° C. (Morax, etc.), is 2° C. lower than the intrauterine temperature, 37·5° C. (Morax). (2) An enhanced virulence of the coccus might possibly account for this unusually rapid development, but opposed to this view is the favourable course run clinically by most of the cases. For example, 8 out of 13 cases (61·5 per cent.), where information is to hand, were cured; one suffered slight, and four severe permanent damage to the cornea (38·5 per cent.) For purposes of comparison it may be stated that, on the average, 66 per cent. of the common run of cases of ophthalmia neonatorum recover with unimpaired sight. (3) A third view assumes feebleness of the babies and consequent weak resistance to microbic action. This, again, is negatived by the apparent health of the majority (57·9 per cent.), while the remainder (42·1 per cent.) were noted as premature or weakly. (4) Another explanation offered is that slight lateral rupture of the membranes has occurred prior to and higher up than the rupture through which the child eventually passes, and that this is sufficient to allow the entrance of micro-organisms, but not the escape of liquor amnii in quantity sufficient to be noticed externally. In two cases, however, examination of the membranes after birth revealed no such irregularity (I : 27 and 29). A possible explanation, where premature rupture of the membranes has not taken place, is that of some slight injury short of actual rupture, permitting access of the gonococcus. This might occur either through the injection of strong antiseptics (I : 13), the nozzle of the syringe or the fluid itself being the damaging agent, or by the finger of the accoucheur during vaginal examination (I : 16, 17, and 26; II : 14). Some such explanation as this appears to us to be necessary, since it is unlikely that gonococci or other micro-organisms from the cervix could penetrate the uninjured and healthy membranes. Otherwise, the number of cases of intra-uterine ophthalmia should correspond more nearly with the cases of pregnancy accompanied by gonorrhœa.

The position occupied by the foetus *in utero* seems to exert no influence upon the production of ophthalmia. It is stated five times—thrice as left occipito-anterior, once as right occipito-anterior, and once as facial.

A local factor is indicated in those cases, seven in number (I : 10 ; II : 2, 3, 6, 8, 15, and 17), where one eye alone was affected with ophthalmia at birth. In three of these cases (II : 3, 8, and 15) no details are given as to the period when the membranes ruptured ; in three (II : 2, 6, and 17) they ruptured under twenty-four hours ; and in one (I : 10) over twenty-four hours before birth.

The labours were in most instances natural, and not unusually tedious. The average duration of 17 cases, where this detail is given, was 13·6 hours, the longest being 48 hours, and the shortest one hour.

Of 17 mothers, 12 were multiparæ, and 5 primiparæ. In passing it may just be said that ordinary ophthalmia neonatorum is commoner in first children than in others.

Metritis (? gonorrhœal) was noted once as occurring during the pregnancy (I : 24).

The placenta is mentioned thrice. In one case (I : 26) it was adherent, and hence called for manual removal, but in the others (II : 16 and 17) it separated readily.

In discharge from the inflamed eyes the gonococcus was demonstrated in 15 cases, the pneumococcus twice, and the bacillus coli communis once.

So far as can be gathered from the data at hand, many of the cases were at birth in an early stage of ophthalmia. Thus, 10 cases (I : 6, 10, 12, 14, 16, 17, 23, 29, 30; II : 16) were in the first stage. It is therefore probable that in these cases infection occurred in some way or other through the membranes before or after rupture. No such explanation, however, suffices for the cases (I : 3 and 4) in which the ophthalmia had apparently run its course *in utero*, leaving a damaged or shrunken eyeball, with traces of discharge or signs of inflammation* still present. Possibly, certain cases of so-called microphthalmos belong to this category, as may also some congenital opacities of the cornea and perhaps all congenital staphylocata. It is, of course, possible that the extreme shrinking of the eyeball in microphthalmos and the small size of the palpebral fissures may be due not only to early intra-uterine inflammation but also to a consequent interference with the normal processes of development. Apart from that, in such cases infection has evidently occurred several weeks or months before birth.

It is known that bacteria are sometimes present in the liquor amnii. In one case (I : 30) that fluid is stated to have smelt strongly. Armaignac (*Annales d'oculistique*, T. 128, p. 241) quotes a case where the bacillus coli communis and other anaërobic microbes were found in liquor amnii drawn off before rupture of the membranes. It is possible, then, that the gonococci in the case of gonorrhœal endometritis or metritis pass through the chorion at a time when its vascular connection

* v. Hippel (*Archiv. f. Ophthal.*, Bd. 47) describes a case in which both eyes discharged at birth. When examined seven weeks later, v. Hippel found an eyeball having only one-half the normal size, anterior synechiae, and probably coloboma of the choroid.

with the uterus is marked, as in the earlier months of pregnancy, thus to the amnion in the later months, when it comes into close relationship with the chorion, and so into the liquor amnii, where it infects the foetal conjunctiva sometime during the last three months of pregnancy, when the eyes are no longer anatomically closed, as at an earlier period. Infection through the liquor amnii must, we think, be assumed in these cases (I : 6, 16, 22, 24, 26, 27, and 29. II : 6, 13, 14, 16, and 17) when the membranes ruptured shortly before the birth of the baby, and yet the child came into the world suffering from ophthalmia. It would also explain the concurrence of vulvo-vaginitis noted once in the series (I : 24).

The theory of general systemic infection, as suggested by Armaignac (*loco citato*), is of some scientific interest. The foetal circulation may possibly become infected either through the maternal general circulation or simply from the placental site. The concurrence of gonorrhœal synovitis on the first day of life in an infant suffering from ophthalmia neonatorum (Ashby and Wright's *Diseases of Children*, 1899, p. 670) is suggestive of a common blood infection. In that case the ocular infection might be both direct, through the liquor amnii (which is thought to be partly of foetal origin), and indirect, through the blood-stream.

As hinted before, a definite conclusion as to the causation of intra-uterine ophthalmia can only be expected when a number of cases have been closely studied, with special reference, among others, to the points raised in the present paper. The subject possesses a suggestive as well as an intrinsic interest. If an actual intra-uterine inflammation is not infrequently the cause of ophthalmia, there seems to be no reason why the same factor should not determine other anomalies, especially those of a so-called "congenital" character. Among these may be more particularly mentioned staphyloma, corneal opacities, microphthalmos, lacrymal abscess, and vulvo-vaginitis. It will thus be apparent that the investigation opens up a widely-increased and very practical sphere.

CONCLUSIONS.

1. Instances of ante-partum ophthalmia are not so uncommon as hitherto believed.
2. About one half of the cases (44.5 per cent.) are satisfactorily accounted for by a premature rupture of the membranes, allowing access of micro-organisms to the baby's conjunctival sac.
3. In the remaining cases (55.5 per cent.) a slight injury to the membranes may determine access of micro-organisms, or infection through the uninjured membranes must be assumed to have taken place.
4. Increased temperature of the conjunctival sac *in utero*, enhanced virulence of the causative micro-organism, feebleness of the babies, slight lateral tears of the membranes, position of the fetus in the maternal passages, and the condition of the placenta cannot be shown to be connected with the causation of ante-partum ophthalmia.
5. Several of the so-called "congenital" anomalies of the eyes, as corneal opacities, staphyloma, microphthalmos, cryptophthalmos and lacrymal abscess, are probably to be explained on the theory of an intra-uterine infection.

TABLE I.
(CASES COLLECTED FROM THE LITERATURE.)

No.	Author.	Reference.	Time before Birth when Membrane ruptured.	Circumstances attending Labour.	Condition of Child.	State of Eyes.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
1	Demours	<i>Maladies des Yeux</i> , 1818, t. II., p. 146				Lids swollen at birth.				
2	Elsasser (5 cases)	<i>Ann. d'ocul.</i> , 1853, t. 37, p. 87				Congenital ophthalmia neonat.				
3	Rivaud-Landrau	<i>Ann. d'ocul.</i> , 1857, t. 37, p. 66				Parents state that at birth lids were red, there was a slight secretion, and the eyeball was shrunken, as when seen by Rivaud-Landrau $\frac{1}{2}$ size of normal. State of the eye similar to that following ophth. neonatorum.				
4	Rivaud-Landrau	<i>Ann. d'ocul.</i> , 1857, t. 37, p. 66				Seen at two days old. Stated to have been "born blind." Lids red, swollen. Granulations present. Discharge. Phthisis bulbi. Eyeball $\frac{1}{2}$ normal size.				
5	Hirschberg	<i>Beiträge zw. prakt. Augenh.</i> , Berlin, 1876, p. 1	... 3 days ...	Labour easy ...		Very wasted; yellow tint				
6	Haussmann	<i>Ref. Med. News</i> , Phila., 1865, 257-9								
7	Magnus	<i>Klin. Monatbl. f. Augenh.</i> , 1887, B. 25, P. 389	3 days ...		Child in first vertex posi.	3 or 4 weeks premature; extremely weak				
										Seen at 5 hours old. History of being born so. Swelling and discharge such as one sees in second stage oph. neonat. Both cornea cloudy and infiltrated. No ulcers.
										Ulcer and scar. No loss of bulb contents.
										Disappeared in a few days.

TABLE I.—continued.

No	Author.	Reference.	Time before Birth when Membranes ruptured.	Circumstances attending Labour.	Condition of Child.	STATE OF EYES.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
8	Winckel	Ref. <i>Med. News</i> , Phila., 1895, 257	45½ hours	... and vertex position.	1 month premature. Weight 2150 g.	Swelling. Cloudiness of right cornea.	Cong. oph. neonatorum.	Gonococci found in non-purulent secretion.	Purulent discharge for 8 weeks. Gonococci found.	At 10 days. Less secretions. Diffuse cloudiness R. cornes.
9	Krukenberg	<i>Zeitschrift f. Geburtshilfe u. Gynäk.</i> , 1892, 456,	30½ hours	... 1st vertex position.				Gonococci found directly after birth.	Primipara.	8 days later double blennorrhœa with lessening secretion.
10	Keller	Mentioned by Kruckenberg				One eye affected. Discharge not purulent. Later both eyes.				
11	Fels	Ref. <i>Med. News</i> , Phila., 1895, 257.				At birth both cornea destroyed and irides prolapsed.				
12	Fels	Centralbl. f. Gynäk., 1893, 873-7	54 hours	...	Not quite full-term. 2770 g. Length 47.5 ins.	Swelling. Both eyes. Watery discharge. Cornea intact.	Gonococci found.	Multipara 12. No sign or history of Lues, past or present. Greenish yellow cervical fluid.	Healed in 6 weeks. Cornea intact.	Five macerated children born previously. Abortion or birth)
13	Dianoux	Ref. Ballouard's Thesis.							Vaginal blennorrhœa some months.	Speedily checked. L. eye less thoroughly treated and suffered most.

TABLE I.—continued.

No.	Author.	Reference.	Time before Birth when Membranes ruptured.	Circumstances attending Labour.	Condition of Child.	STATE OF EYES.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
14	Dianoux	Ref. Bellouard's Thesis.	2 days. Liquor away twice, 2 days and 1 day before respectively.		Born with redness of upper lid, followed on same day by swelling, and next day by pus.	Lids enormously swollen. Pus and blood.		One year before, a miscarriage, followed by puerperal fever. Virginitis which had been carefully treated.	1 cornea much damaged.	
15	Guilbaud	...	Ref. Bellouard's Thesis.	60 hours ...	Intact 8 hours before birth.	Lids agglutinated. Red. Swollen. Pus followed later.		Abundant leucorrhœa.	Cured.	
16	Bellouard	...	<i>Thesis—Etude sur l'apparition précoce de l'ophthalmie purulente chez les nouveau-nés.</i> Paris, 1892.		Many exams. by students. T. 39°8° after delivery.			Multipara. Abundant leucorrhœa. 4 months before labour.	Rapid recovery	
17	Bellouard	...	<i>Thesis—Etude sur l'apparition précoce de l'ophthalmie purulente chez les nouveau-nés.</i> Paris, 1892	19 hours ...	Frequent examinations	Full term, 2 kg. 400 g.	Redness and swelling of lids. 3 hours later much thick fluid	Primipara; severe vaginitis, with enormous vegetations,	Rapid cure	
18	Parischew	<i>Ann. d'ocul.</i> , avril, 1893, 314			Normal, 12 hrs. 35 mins.		No other anomaly. Feeble.	Gonococci	Amelioration began with treatment	
19	Looten								1 day after birth chancosis, probably of 24 hours' duration; 1 cornea involved	

TABLE I.—continued.

No.	Author.	Reference.	Time before Birth when Membranes ruptured.	Circumstances attending Labour.	Condition of Child.	STATE OF EYES.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
20	Galezowski	Ref. Nagel's <i>Jahresbericht</i> , 1875, p. 215				Eyes inflamed and purulent discharge at birth. Seen by Galerowski 48 hours later, when he found destruction of both corneas				
21	Fers	Hirschberg's <i>Centralblatt f. prakt. Aug.</i> , 1893, p. 557	54 hours	Labour tedious		Well-marked double blennorhoea	Gonococcus	Multipara; yellowish-green cervical fluid	Chancroids and Opacities of venereal warts	
22	Friedenwald	<i>Med. News, Phila.</i> , 1895, 237-9	2½ hours	2 days	....	Credded immediately. Within one hour, pus			at 28 days	
23	Edith Eareckson	Ref. <i>Med. News, Phila.</i> , 1895, p. 257-9	15 hours	Face presentation		Lids swollen. Muco-pus	Multipara			
24	Arnaignac	<i>Ann. d'ocul.</i> , t. 128, 1902, p. 241	½ hour (broken by midwife)	11 hours	....	8 mos. child, puny, 1786 g. Vuvititis	Mulitparis; dur-matitis during this pregnancy		Previous child had not oph. neonat.	
25	Haase	.....				Swelling, redness, pus, cornea				
26	Woods	<i>Zeitschrift f. Geburtshilfe</i> , 1898, p. 4-10	1½ hours	...	16 hours	At birth, high grade of inflammation. Purulent discharge				
		Ref. Hinrichberg's <i>Centralbl. f. prakt. Augenw.</i> , 1899, p. 557.				Eyelids red and swollen at birth. Lower part of cornea in one eye opaque, next day also in other eye. Pus seen first day.			18 years	
									Primip.	
									No history or sign of leucorrhœa.	
									Numerous gonococci found 3 h. after birth.	
									Found in stool.	
									Found in urine.	

TABLE I.—continued.

No.	Author.	Reference.	Time before Birth when Membranes ruptured.	Circumstances attending Labour.	Condition of Child.	State of Eyes.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
27	Liroff	Ref. <i>Recueil d'Ophthal.,</i> 1901, p. 705.	At full dilatation of os 6 minutes before birth. No second rupture seen.	Normal	Born with blennorrhœa	Gonococci	Gonococci in vag. secretion			1st child had ophthalmia neonat. on 4th day.
28	Olkitchitz	Ref. <i>Recueil d'Ophthal.,</i> 1901, p. 705.	1 week...		Cong. oph. neonatorum					
29	Strzeminski	Ref. <i>Recueil d'Ophthal.,</i> 1901, p. 705.	At full dilation of os, few minutes before birth. No second rupture seen.	Normal 13 hours. 1st vertex position.	Well-developed full-term, otherwise healthy.	Born with swollen lids; seen at 4 hours. Tumefaction of lids. Seropurulent discharge. Small opalescence of L. cornea. Later, pus abundant.	Mulipara	Leucorrhœa. Numerous gonococci.	Corneal opalescence disappeared in 1 week. Cure 3 weeks.	
30	Chavanne	Ref. <i>Recueil d'Ophtal.,</i> 1899, p. 70.	3 days...	Liq. amni. smells strongly.		Marked oedema of both lids at birth. Suspicious serous excretion. Both cornea opaque.		Purulent discharge since 3rd week of pregnancy. Numerous vegetations.		
31	Mules	Prise Essay, 1888, P. 9 Ophthal. neonat.		Exceptionally easy.	Premature, 7th month	Well-marked ophthalmia neonatorum at birth. Seen at 8 hours, with usual symptoms of 2nd stage.			Did well, but very protracted course.	

TABLE II.
(NEW CASES).

No.	Time before Birth when Membranes ruptured.	Circumstances attending Labour.	Condition of Child.	STATE OF EYES.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
1	3 days	..	..	Born at night. Eyes noticed to be inflamed early next morning. Seen on 9th day. Purulent ophthalmia; medium severity. Both cornea hazy. Small epithelial defect lower inner part of left cornea. Jaundiced. Eye discharge yellow.	Gonococci	..	Multip., 2	..
2	20 hours	26½ hours. Instruments not employed	Full term	Right eye stated to have been running and inflamed at birth. Left eye infected with day. Seen at 3 weeks. Purulent ophthalmia of each eye. Cornea clear.	Numerous cocci	Gono-	Multip.	..
3	24 hours	Term	..	Left eye noticed inflamed at birth. Right eye infected a week later. Seen at a month. Bilat. oph. neonat. Cornea clear.	Gonococci	..	..	..
4	1 hour	..	..	Lids swollen and eyes discharging at birth. Seen at 10 days, and then cured after treatment in casualty department.	..	..	..	..
5	..	..	..	Eyes noticed to discharge at birth; soon afterwards eyes very swollen. Seen at 14 weeks. Bilat. oph. neonat. of med. severity. Cornea clear	Bacillus coli com.	..	..	..
6	Just before birth	10 hours Natural	Term	Left eye inflamed and running with matter at birth. Seen at 1 week. Pal. conj. reddened and running with water on exposure	..	..	..	Both eyes "bad" at birth. Seen at 2 weeks. Cornea clear. Symptoms so mild as hardly to suggest gonorrhœa
7	..	..	..	..	..	..	..	Crooks of pneumococci

TABLE II.—continued.

No.	Time before Birth when Membranes ruptured.	Circumstances attending Labour.	Condition of Child.	State of Eyes.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
8				Left eye inflamed and discharging matter at birth. Seen at 4 months			Good recovery. Small opacity left on each cornea.	
9	1½ hours. Natural	Term		Eyes discharged at birth. Seen at 3 weeks. Severe case of ophthalmia neonatorum, with corneal mischief. Cornea diffusely cloudy, with some dense spots of opacity, but no actual ulcerations. Vascular ring round each corneal margin	Gonococci found for 60 days			
10 & 11	12 hours ... Twins		6½ lbs. 7 lbs.	Eyes inflamed within 10 hours of birth. Seen at 1 week. Ophthalmia: a. Cornea clear; b. Cloudiness in lower half left cornea	Gonococci			
12	15½ hours ...	Natural. 21½ hours	Term			Numerous gonococci	Multip., 3. Age 34. Rheumatoid arthritis last 2 years	Primip.
13	Stated to have "had no waters"	Natural. 16 hours. Normal presentation		8 or 9 hours after birth both eyes noticed inflamed and discharging matter. Seen at 9 days. Oph. neonat. of medium severity. Cornea clear		No gonococci or other bacteria after repeated search		
14	½ hour	3 hours. Natural	Lusty infant	6 hours after birth eyes noticed to be swollen like bladders. Seen at 7 days. Both cornea uniformly hazy. No ulceration. Medium severity.		No gonococci despite careful search	Multip., 4	
		pain during labour. Frequent examinations		½ hour after birth, eyelid, noticed to be swollen, "watery and humongous discharge." Seen at 1 day. Red and swollen lids, moderate quantity of thin "meat juice" discharge. No actual pain. Chemosis. Cornea clear				

TABLE II.—continued.

No.	Time before Birth when Membranes ruptured.	Circumstances attending Labour.	Condition of Child.	STATE OF EYES.	Bacteriology.	Condition of Mother.	Course of Ophthalmia.	Other Remarks.
15	1½ hours.	No examination made. nor was mother touched before birth	Placid. Well-nourished	At birth, left eye thick with matter. Right eye infected 3rd day, 22 days. Medium severity. Open eyes. Not much swelling. Considerable quantity of cream-like discharge. Palpebral conjunctiva red, thick, folded, villous. Cornea clear	Gonococci even at 22 days	Multip. 4. Leucorrhœa always. No scalding on micturition	Rest of children have not had bad eyes	
16	6 hours	Natural. 13½ hours. re-examination less than ½ hour before birth. Placenta separated readily.	8th month; very small child.	Eyes inflamed and mato-puerulent discharge at birth. First few days' discharge blood-stained. Seen at a. month. Weight 5½ lbs. Pasty, sniffling, apathetic. Syphilis. Lids red, not much swollen, fair amount of thick yellow pus. Palpebral fissures preternaturally small. Palpebral conjunctiva thick, red, villous	Gonococci. No other micro-organ.	Multip., 2	Died at 2 months from syphilis. Eyes cured.	Favourable.
17	70 minutes	Duration 8 hours and 20 minutes. Natural labour. Instruments not used. No vaginal examination made. Placenta separated readily.	Term	At birth right eye red and discharging "matter." The second eye became infected a week after birth. When seen a month after birth, mild bilateral ophthalmia. Cornea clear.	Pneumococci and Xerosis Bacilli.	Primipara. Yellow vaginal discharge, attended with scalding, on micturition, five months before child was born.		

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

CŒTANEOUS CONTRAST COLORS AND ASTIGMIA.

BY

CHARLES A. OLIVER, A.M., M.D.,
OF PHILADELPHIA, U.S.A.

At the suggestion of Dr. S. Weir Mitchell, and in association with him, the writer, during the winter of 1901 and 1902, made several hundred experiments upon intelligent ametropes of both known and unknown kinds and degrees of astigma.

The apparatus used and the methods employed were those which had been intended for experimentation for the determination of the causation of the phenomena of simultaneous contrast colors appearing before large masses of falling water which had been observed the year before in Japan by Dr. Mitchell.

During the experimentation, a distinct relationship between the character of the color contrast and the astigmatic conditions of the observer was so constantly obtained that the following broad generalisations were rendered permissible:

I. Cœtaneous contrast color complements are more certain, more pronounced, and more complex in positive relation with the kind, the degree, and the meridianality of the existent astigma.

II. Cœtaneous complementary color contrasts in their primary and least complex types, appear as faint red-green bands, which begin as a series of marginal stripes along the watery borders, the red being the first evolutionised tint; these being the most prominent color factors in the simpler and the more regular forms of astigma.

III. Cœtaneous color contrast complements in their more complicated varieties, superadd determinate degrees of simultaneous blue-yellow complements to the red-green series, these associated subjectivisms being fixed in form and positive in position in direct relationship with the grossness of the amount of the resident astigma and its departure from the prevalent angle.

IV. Complementary color contrasts of cœtaneous types in their most exaggerated forms are always found in strict association with the highest degrees and the most bizarre types of regular and irregular astigma.

CASE OF RETINITIS PUNCTATA ALBESCENS.BY
T. HARRISON BUTLER, M.D. (Oxon).

ASSISTANT SURGEON TO THE BRITISH OPHTHALMIC HOSPITAL, JERUSALEM.

Ibrahim, *æt.* 6, was brought to the British Ophthalmic Hospital, Jerusalem, by his father, a Bedouin Arab.

The father says the child has had failing sight for two or three years, and has been quite blind for several months ; but he cannot give any more accurate estimate of the real time the disease has been noticed. No other members of the family are blind. The father, mother, and child are apparently perfectly healthy, and present no signs of syphilis, which is exceedingly rare among the Bedouin tribes.

The child is perfectly blind, and makes no attempt to fix, the eyes wandering aimlessly from side to side. There is no perception of the most concentrated light. The ophthalmoscopic examination shows a similar condition in each eye. The whole fundus is covered by showers of glistening white spots. They are specially grouped round the maculae, and along the vessels ; towards the periphery they are less numerous. At first sight, the spots looked like those seen in albuminuric retinitis, but more careful examination showed that they were due to atrophy of the choroid and retina, the sclerotic shining through apparent holes in the choroid. Both discs were dead-white, and the vessels were very small. The whole condition suggested the secondary optic atrophy which follows retinitis pigmentosa, a disease which is far from uncommon among the Bedouin and the Fellaheen of Palestine.

NOVELTIES.

THE "ENGLEFIELD" EYESIGHT-PRESERVING BOOK SUPPORT.

The "Englefield" Eyesight-Preserving Book Support consists of a board 16" by 12", supported at one end by a sliding bracket which readily permits the board to be sloped at convenient angles. By a novel and ingenious arrangement the support is placed at one end. This allows both sides to be used. Upon one side is a book ledge deep enough to carry small or heavy books up to 13" by 11" or larger, the other is clear except for a narrow ledge at the bottom (intended to support papers, copy books, exercise or drawing books) and may be used in a nearly upright position for drawing or when placed at a suitable angle, for writing.

The purpose of the apparatus is to enable school pupils, students, those wearing spectacles, and others to maintain the upright position of body and head when reading, writing, drawing, or painting. The apparatus is simple and admirably answers the purposes for which it is designed, and its slight cost (5s. in plain wood) places it within the reach of most people.

A SYMPOSIUM UPON CATARACT EXTRACTION.

Comment nos maîtres opèrent aujourd'hui la Cataracte.

La Clinique Ophthalmologique, février 10 et 25, 1906.

(Concluded from page 139.)

15. For the last two years **Czermak** (Prague) has practised almost exclusively the subconjunctival extraction of cataract described by him in his treatise *Die Augenärztlichen Operationen* (1893). The preliminary treatment includes the cure of any conjunctival or palpebral affection. The lacrymal passages are assumed by Czermak to be sound if the characteristic colour appears in the nose three minutes after fluorescein has been dropped into the conjunctival sac. The cilia are removed, especially from the upper lid. The eyebrows are shaved. The eyelids and their free borders are cleansed by soap, hot water, and mercury oxycyanide, and immediately before operation, the conjunctival sacs are flushed with sterile serum. A hypnotic is administered to the patient half-an-hour before operation. Instruments are boiled for five minutes in a 1% solution of soda. Cocaine, 5%, is dropped into the eye three times during the fifteen minutes immediately preceding operation, and the eye is rendered anaemic by means of adrenaline, 1 : 1,000. The surgeon's hands are cleansed with soap and hot water and mercury oxycyanide, 1 : 1,000, and dried with a sterilised towel. The operator and his assistants wear Jeffray's respirator, and are clad in sterilised blouses and caps during the operation, which is conducted by artificial light. Czermak practises two distinct operations for the removal of cataract : first, a downward section without iridectomy ; and secondly, an upward section with iridectomy. In the first, the knife is entered at the temporal end of the horizontal diameter of the cornea, and after the capsule has been opened, is withdrawn from the eye. An incision is next made in the ocular conjunctiva, descending vertically for from 1·2 cm. to 1·5 cm. from the corneal wound. The conjunctiva is then

seized with forceps, and detached by means of scissors as far as a point level with a vertical line descending from the nasal extremity of the horizontal diameter of the cornea. Above, the detachment follows closely the lower border of the cornea. The next step consists in introducing one blade of a pair of fine scissors into the anterior chamber, while the other blade lies in the conjunctival pouch, made as described above. The lower border of the cornea is then divided with the scissors as far as the internal extremity of the horizontal diameter. If the capsule has not been previously opened, a piece is now removed by means of capsular forceps introduced through the external orifice of the conjunctival flap. The lens is expelled by means of pressure exercised by one spatula placed on the cornea above and another inserted into the conjunctival pouch below. In this way the cataract is expelled beneath the conjunctiva, whence it is readily removed. Capsular remains are got rid of similarly. Finally, the conjunctival pouch is closed by one or several points of suture. Czermak claims that his method of extraction provides an absolute safeguard against infection. In Czermak's second method—upward section with iridectomy—a conjunctival pocket is also made, but on this occasion above instead of below the cornea. The conjunctiva is button-holed at the extremity of the vertical diameter of the cornea for the purpose of introducing the iris forceps into the anterior chamber. The iris is seized, drawn through the button-hole, and cut away with de Wecker's scissors. No sutures are employed in this operation, since the wound is covered by the upper eyelid. A dose of trional or veronal or some other hypnotic is administered immediately the operation is completed, and repeated for some nights afterwards. Formal dressings of gauze and bandages are employed by Czermak only in complicated cases. As a rule, he applies to both eyes a well-padded Fuchs' wire shield. This appliance is retained for three days, during which time the patient keeps his bed. Eserine, 2%, is applied immediately after operation, and atropine is used the next day. The discussion of secondary cataract is carried out as soon as possible, the minimum period of delay being placed by Czermak at twelve days. For this purpose the author employs Knapp's knife.

16. **Sattler** (Leipzig) cleanses his hands, and particularly the grooves of his nails, with soap and hot water, brushes them with tincture of soap, steeps them in sublimate, 1 : 1,000, and in hot water, and, finally, dries them on a sterilised towel. The patient is given a general bath, and his eyelids are washed—first, with an alcoholic solution of soap, and, then, with sublimate, 1 : 1,000. The conjunctival culs-de-sac are irrigated with serum sterilised at a temperature of 30° C. Lacrymal and conjunctival diseases,

of course, receive careful treatment on the usual lines. As to the operation itself, Sattler generally makes an upward incision, combined with iridectomy, and a conjunctival flap, and employs Fuchs' capsular forceps, unless the capsule is distended, in which event he employs the cystitome. The cataract is delivered by pressure. The eye is covered by a shield for five days, and the patient is placed in a room darkened to such an extent as to render reading impossible. The patient is discharged on the tenth or eleventh day. In suitable cases Sattler endeavours to mature cataract by iridectomy and trituration through the cornea, practised two to four weeks before extraction.

17. **Dianoux** (Nantes) contents himself by describing his method of operation, namely, by the combined extraction, removing the smallest possible piece of iris. This he effects by introducing the closed *pince-ciseaux* into the anterior chamber to a point just beyond the sphincter, allowing the blades of the instrument to separate, and then, the iris being engaged, by cutting off a small piece of the last-named structure. The excised iris comes away with the instrument or the cataract, but even if left in the anterior chamber, it is rapidly absorbed. The result of Dianoux's modification might be described as an iridotomy rather than as an iridectomy.

18. **Louis Dor** (Lyons) sterilises his instruments for ten minutes in olive oil (freed from oleic acid by maceration for twenty-four hours in absolute alcohol) at a temperature of 140°. He claims that by this method his instruments are neither dulled nor rusted. When taken from the oil bath they are placed in boiling water, where they are kept until used. The patient's skin is sterilised by means of mercury biniodide and oil, and the conjunctival sacs by means of mercury cyanide applied by an irrigating speculum. With a view of preventing infection, exogenous or endogenous, two grammes of potassium iodide are administered to the patient the night before and the day of the operation. Dor operates with or without iridectomy, according to the position of the corneal incision, and employs a light speculum. He extracts in the capsule all cataracts the capsule of which is abnormally resistent, and for this purpose employs a small hook, made by the firm of Souel, of Lyons.

19. **Vacher** (Orleans) prior to operation, irrigates the lacrymal passages, in order to ensure their permeability, and covers the eye with a "test dressing" (*pansement d'épreuve*), which he claims to have been the first to devise. He is a strong advocate of removing the cataract under the protection afforded by a sclero-conjunctival bridge, a plan originally due to Desmarres. The operation may be described as follows:—two or three instillations of cocaine-adrenaline are made at intervals of five minutes, and

the eyelids separated by means of the speculum devised by the author. The capsule is opened with the point of the knife. The section includes $5/12$ of the cornea, and is directed somewhat backwards with a view to conserving a sclero-conjunctival bridge. The lens is delivered by pressure. Vacher seldom practises an iridectomy. On the other hand, he pays great attention to the "toilette" of the wound. Eserine is often used after the operation.

20. **Kuhnt** employs antisepsis before and asepsis during the operation for cataract. The night before extraction the cilia are clipped and the eyelids are covered—first, with compresses of mercury oxycyanide, 1 : 1,000, and, then, with boric acid compresses. The edges of the lids are cleansed with benzine, and the conjunctival sacs washed with saline solution. The operator, who wears a veil over his nose, mouth, and chin, stands behind the patient's head, which is covered with material steeped in sublimate. Instruments are twice sterilised by heat. Kuhnt warmly recommends general anaesthesia. In order to make the section, a special knife is employed—one that combines the good points of those which bear the names of Beer and von Graefe respectively. Although not an advocate of the ordinary conjunctival flap, yet Kuhnt covers the corneal wound with a flap cut from the ocular conjunctiva. Among the indications for combining iridectomy with the extraction, Kuhnt includes such general conditions as cough and timidity, and such local conditions as a shallow anterior chamber, abundant cortical masses, regressive cataract, myosis, large nucleus, and the possession of a single eye. Preliminary iridectomy is advised in diabetes, gout, chronic rheumatism, posterior synechiæ, recent cyclitis, anaesthesia of the cornea, suspected glaucoma, and, lastly, in patients of a prudent disposition. As regards the method of opening the capsule, Kuhnt employs capsular forceps or cystitome, according to circumstances. Stress is laid upon the importance of having cystitomes perfectly sharp, since a defect in that direction may entail serious complications. The cataract is delivered by means of a Daviel's curette applied below, with or without pressure upon the upper lip of the wound by a spatula. Kuhnt is an advocate of *lavage* of the capsular sac, and for this purpose he employs a curved canula connected with a caoutchouc ball. The indications for extraction in the capsule (after Alexander and Pagenstecher) are rare. In such cases Kuhnt first tries to remove the cataract by taking a good hold of the parts with capsular forceps, and that failing, he employs the loop.

21. **Truc** (Montpellier) describes his methods before, during, and after the operation of extraction. Instruments are sterilized at a temperature of 130° to 140° in Poupinel's dry stove. A

"test" dressing is applied. The edges of the lids and the cilia are cleansed by means of a solution of mercury biniodide in oil, and the conjunctival sacs by copious irrigation with tepid water or boric lotion. The patient is operated upon in bed. The eye is treated with three drops of 1% solution of atropine, in order to appreciate the dilatability of the pupil, and local anaesthesia is secured by cocaine. General anaesthesia is the exception in Truc's practice. Truc wears a mask, and employs one assistant only during the operation. Adrenaline is seldom used at Montpellier. Truc performs a preliminary iridectomy, the excision being made downwards in indocile subjects. In complicated and incomplete cataracts he adopts the combined operation. In 90% to 95% of his cases, a conjunctival flap is made. Three drops of atropine are placed in the eye when the operation is finished. The after-treatment includes rest in bed for two or three days, binocular dressing, and, if necessary, the administration of bromidia. The patient, who is discharged on the tenth or twelfth day, resumes his occupation after three or four weeks.

SYDNEY STEPHENSON.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—OPAQUE NERVE-FIBRES.

- (1) Menacho.—**Opaque nerve-fibres of unusual disposition : congenital cataract.** (*Fibras con mielina, disposicion insolita : catarata congenita.*) *Arch. de Oftal. Hisp.-Americ.*, January, 1904, and *Rev. générale d'ophthalmologie*, 30 novembre, 1904, p. 499.
- (2) Mayerweg, Karl.—**Medullated nerve-fibres in the retina.** *Archives of Ophthalmology*, January, 1905.
- (3) V. Michel.—**Anatomical examination of ophthalmoscopically-seen medullated nerve-fibres of the retina.** (*Anatomischer Befund bei ophthalmoskopisch sichtbaren markhaltigen Nervenfasern der Netzhaut.*) *Zeitschrift für Augenheilkunde*, April, 1905.
- (4) Sachsalber, A.—**Disappearance of medullated fibres in the retina in a case of optic nerve atrophy brought about by a tumour of the brain.** (*Schwund markhal-*

tiger Nervenfasern in der Netzhaut bei entzündlicher Atrophie des Sehnerven infolge eines Tumor cerebri.) Zeitschrift für Augenheilkunde, Ergänzungsheft, Band XIII., 1905.

(1) **Menacho**, in a patient aged 31 years, who had been operated on for congenital cataract, found opaque nerve-fibres occupying a great part of the fundus oculi. The fibres radiated from the entire circumference of the disc and allowed one to see the arrangement of the white fibres exposed to view on the retinal background. One could also recognise very clearly the course of the superior and inferior bundles which bent around the macular region. The last-named remained free from change, and by contrast was very visible.

(2) The clinical frequency of opaque nerve-fibres has been variously estimated to range from 1 to 4 per 1,000 patients. **Mayerweg** describes the microscopical examination of three eyes with the anomaly in question. Sections were stained in various ways, including the Weigert-Pal method. In the first case the medullated fibres ended at the posterior level of the lamina cribrosa, but regained their sheaths suddenly at the margin of the papilla, and formed in meridional section a wedge-shaped mass, the apex of which reached to about the equator of the eye. It then passed over into non-medullated fibres, which here and there regained their sheaths for short lengths. In many places it could be seen that fibres did not become completely non-medullated at once, but continued for some time covered with fine traces of medulla. The medullated fibres formed a plexus, in which most of the fibres ran parallel to one another. There were many varicosities on the axis-cylinders. The retina in the region of the medullated fibres consisted merely of the fibres themselves and of pigment epithelium. In addition to all this, a tissue of varying thickness, staining an intense red by van Gieson's method, lay upon the internal limiting membrane on the head of the optic nerve and above and below that structure. It accompanied the medullated nerve-fibres, and at some places overstepped the boundaries of the latter. In many places it presented a homogeneous appearance. It contained capillary vessels, but no elastic fibres. In Mayerweg's second and third case the microscopical appearances of the opaque nerve-fibres were much the same, *mutatis mutandis*, as in the first case.

Mayerweg quotes the view of Schmidt-Rimpler and von Hippel, *viz.*, that opaque nerve-fibres is not a congenital anomaly, strictly speaking, but a condition that develops after birth. That the predisposition is congenital is supported by the fact that other deviations from the normal are often present in such cases.

The precise nature of the predisposing factors has yet to be determined. But the author thinks that one such factor may be found in the connective tissue growth which was present in his first case.

S. S.

(3) **V. Michel** had occasion to remove for sarcoma an eye which showed medullated nerve-fibres. He gives pictures of the condition found. At the point of entry of the optic nerve into the lamina cribrosa the medullary sheaths all cease abruptly. At one point in the lamina cribrosa there is some indication of a medullary sheath around a few fibres for a very short distance—at point of exit of optic nerve from lamina cribrosa certain of the fibres running temporally become once more medullated which thus form a thick bundle becoming less marked as it runs outward—until they disappear entirely about 4 disc-diameters from the papilla.

A. LEVY.

(4) **Sachsälber** had the opportunity of observing the effect of a papillitis and then of a post-neuritic atrophy upon medullated nerve-fibres in the retina. The patient suffered from a slowly-growing cerebral tumour situated at the base of the skull and principally in the middle fossa, extending also into the anterior fossa. The first thing noticed with regard to the eyes was a failure of vision, with normal ophthalmoscopic appearances; then came papillitis with engorged veins; and, later, atrophy, in the course of the development of which all the medullated fibres disappeared, and vessels previously obscured by them became visible.*

A. LEVY.

II.—HÆMORRHAGIC GLAUCOMA.

Birch-Hirschfeld, A.—A case of pronounced deformity of the Eyeball, together with some contributions towards the study of Hæmorrhagic Glaucoma. (*Ein Fall von hochgrädiger Deformität des Bulbus, zugleich ein Beitrag zur Kenntnis des hämorragischen Glaukoms.*) *Klin. Monats. f. Augenheilkunde*, Beilageheft, 1903.

The gist of this article is a discussion of the causes of hæmorrhagic glaucoma. **Birch-Hirschfeld** insists on the importance of exhaustive notes and minute investigation of each separate case, which should serve as contributions to the general fund of knowledge, since our information concerning this subject is limited.

*Sachsälber's curious case has its counterpart in one reported by Wagenmann (*Arch. f. Ophthal.*, Bd. XL., p. 256).—EDITORS.

The following is an abstract of a case of his own, which he considers particularly interesting, because there were present, together with signs of pronounced glaucoma, also extensive changes in the vessel walls and haemorrhages into the retina and the ciliary tract. The patient was a badly-nourished woman of 75 years. Sixteen years ago a cataract was extracted from the left eye. Eight weeks ago she had violent pains in the left eye and temple,* also the sight of the right eye became less good. On general examination, nothing abnormal found, except a decided thickening of the radial and ulnar arteries. No albumen in urine.

Left eye.—Cornea cloudy, especially towards the centre; iris hardly to be seen. Anterior chamber abnormally shallow. Pupil oval, adherent above and below to anterior capsule of lens. No reaction to light and accommodation. Hyphæma 3 mm. high. The anterior ciliary veins much congested : tension + 3. Sensibility of cornea almost absent. Sight almost, gone.

Right eye.—Differs from left in that the cornea is clear, the lens is slightly cloudy with some peripheral linear opacities. The fundus can be examined. Typical glaucomatous cupping and halo around papilla. No haemorrhages into the retina can be identified : tension + 1. Ciliary vessels slightly congested. Cornea slightly defective in sensibility. The field of vision probably defective nasal side (difficult to be certain, as patient unintelligent). The left eye was removed. A successful iridectomy was performed on the right. Careful measurement showed that in the left eye, the vertical exceeded the transverse diameter by 6 mm. The insertion of the oblique muscles had been pushed away from the edge of the cornea, and the sclera was thinned in the equatorial region. The measurements of the cornea indicated considerable astigmatism. The anatomical changes typical of a simple glaucoma were present, i.e., vacuoles between the basal cells of the corneal epithelium ; closure of the anterior chamber partly through adhesion of the iris, partly through blockage of the spaces of Fontana by an extensive effusion of blood, the formation of a membrane in front of the iris, atrophy of the iris, flattening and hyaline degeneration of the ciliary processes, deep excavation of the optic nerve.

The author enquires : was the deformity of the eye-ball congenital and did it dispose to glaucoma ; or, was the deformity attendant on the glaucomatous increase of tension ? Against

* The pain probably denoted the change from a chronic to an acute condition.

the latter theory is the fact that glaucoma tends to lessen or even invert astigmatism. Should the posterior synechiæ suggest that the glaucoma was secondary to iritis? Against this is the presence of glaucoma in the right eye, which is evidently primary. What connection is there then between the retinal changes and the glaucomatous symptoms? In the right eye there is glaucoma without haemorrhage complications, but we must not therefore infer that the haemorrhages in the left eye were secondary. Moreover, because we cannot identify any haemorrhages in the right eye, it does not follow that none are present. Then the left eye haemorrhages may be incident to a general arterio-sclerosis, and have located themselves by chance in the glaucomatous eye. In most cases vessel changes have preceded haemorrhagic glaucoma, but they are also often found in non-haemorrhagic glaucoma. The character of the affection of the retina differs in different cases of glaucoma; sometimes there is an acute occlusion of the vessels, with or without changes in the vessel walls, sometimes a chronic change of the retinal vessels without thrombosis.

After examining cases reported by various observers, Birch-Hirschfeld notes that wide-spread vessel changes were present in most cases. Thrombosis and embolism of the central artery were also sometimes present, but these latter states were often preceded by vessel changes. We cannot therefore look upon occlusion of the vessels as the only cause of haemorrhagic glaucoma, and we must consider whether the vessel changes were secondary or primary. It must be remembered that vessel changes are common in simple glaucoma. They also exist where there are no symptoms of glaucoma. We cannot therefore consider vessel changes as the sole cause of increase of tension. To look upon changes in the vessel walls as consequent upon increased tension is also wrong, since such exist where there is no increase of tension. We must look upon vessel changes as evidences of some general disease (heart, kidneys) and consider them to be but a link in the chain of causes, predisposing to haemorrhagic glaucoma; the underlying primal cause of the disease is yet to find. To solve all these difficulties, the author begs that enucleated glaucomatous eye-balls may be minutely examined and reported on.

ANNIE T. BARNARD.

III.—TRAUMATIC EMPHYSEMA.

- (1) Hansell, Howard F.—Traumatic emphysema of the orbit and lids. *Trans. American Ophthalmological Society*, Vol. X, Part II, 1904, p. 326.
- (2) Hansell, Howard F.—Traumatic emphysema of the orbit and lids. *American Medicine*, 17th September, 1904.

(1) Air may gain access to the subcutaneous tissue of the eyelids without fracture of the orbital bones or rupture of the periosteum. As regards the orbit, however, the case is different. As Hansell points out, there are three essentials before that can occur, namely, (1) a break in the continuity of the mucous membrane, (2) a fracture of the osseous wall of the orbit, and (3) a rupture of the periosteum. As a rule, emphysema of the orbit and emphysema of the lids occur as associated lesions and are due to a common cause. The air rarely extends to the neighbouring parts of the face.

As to the causes of emphysema, Hansell classifies them as under :—1. Traumatism. 2. Necrosis. 3. Surgical injuries. 4. Spontaneous. Each of these may be glanced at in turn. 1. Traumatism :—Walser's experiments upon dead bodies (*Graef's Archiv*, 1897, Bd. 43) have shown that injury caused fracture of the lamina papyracea of the ethmoid bone and rupture of the investing periosteum, so that in this way a communication was opened up between the nasal cavity, on the one hand, and the orbit, on the other. The immediate cause of the fracture of the lamina is an elevation of the orbital pressure as the result of the eyeball being forced backwards. This view, of course, is inadequate to explain emphysema following injuries to the back of the head, as in cases reported by Hilbert and Baudry. Extensive haemorrhage from laceration of a large vessel is not likely to occur, because of the tortuous course of the vessels and the protection afforded to them by the soft parts. Such a condition would be shown by loss of sight, permanent changes in the ocular structures, extensive conjunctival ecchymosis, or escape of blood from the nose. Complete and speedy recovery, on the contrary, would militate against the diagnosis of orbital haemorrhage. 2. Necrosis :—Emphysema, as well known, may follow necrosis of the walls of the orbit, such as the ethmoidal plate or the floor of the frontal sinus. 3. Surgical injuries :—Emphysema has been known to occur after division of the mucous membrane of the nasal duct during the introduction of Bowman's knife or after rupture of the membrane during the attempt to introduce probes. 4. Spontaneous :—To the few

recorded instances of spontaneous emphysema—that is, emphysema without history of fracture—Hansell adds another case, observed in a boy aged 16 years, who was struck on the left cheek, an injury causing laceration of the buccal mucous membrane against the teeth. Next day, he tried to measure his powers of expiration by blowing into a recording machine, and immediately the left side of his face, including the eyelids, became distended. Recovery ensued in the course of a few days.

The treatment of emphysema is by pressure and massage. Hansell has no confidence in the administration of potassium iodide, as recommended by some writers.

(2) Emphysema of the orbit and lids, according to **Hansell**, may arise from (1) traumatism ; (2) disease of the bones separating the orbit from neighbouring cavities ; (3) surgical operations ; and (4) spontaneously from forcible expiration in the presence of erosion or ulceration of the buccal mucous membrane. Illustrative cases are cited from the literature and from the author's own practice. Hansell's well-constructed communication deserves to be read in the original by those interested in the mechanism of surgical emphysema.

IV.—AFFECTIONS OF THE LACRYMAL APPARATUS

- (1) **Augiéras.**—**Dacryocystitis.** (*La dacryocystite.*) *L'Ophtalmologie Provinciale*, mai à juillet, 1904.
- (2) **Augiéras.**—Treatment by internal incision of prelacrymal pockets complicating chronic dacryocystitis. (*Traitemennt par l'incision interne des poches prélacrymales compliquant la dacryocystite chronique.*) *L'Ophtalmologie Provinciale*, juillet, 1904.
- (3) **Stieren, Edward.**—**Cystadenoma of the lacrymal gland.** *Trans. American. Ophthal. Society*, Vol. X, Pt. II. (1904), p. 323.
- (4) **Chappé.**—**A paralacrymal tuberculous neoplasm.** (*Néoplasie tuberculeuse paralacrymale.*) *Annales d'oculistique*, T. CXXXIII, p. 177, mars, 1905.
- (5) **Leblond.**—On **dacryocystitis consecutive to the radical cure of maxillary sinusitis.** (*De la dacryocystite consécutive à la cure radicale de la sinusite maxillaire.*) *Archives d'ophtalmologie*, mai, 1905.
- (5A) **Wicherkiewicz.**—Upon acute inflammation of the lacrymal gland. (*Sur les dacryo-adénites aigues.*) *Archives d'ophtalmologie*, juin, 1905.

- (6) Péchin.—Congenital attenuated dacryocystitis (Pseudo-conjunctivitis of newly-born children of lacrymal origin.) [Dacryocystite congénitale atténuée (pseudo-conjonctivite des nouveau-nés d'origine lacrymale).] *Archives d'ophtalmologie*, août, 1905.
- (7) Montano.—The etiology of affections of the lacrymal passages. (Etiología de las afecciones de las vias lacrimales.) *Anales de oftalmología*, Agosto, 1905.
- (8) Antonelli, A.—Lacrymal conjunctivitis in the newly-born and congenital dacryocystitis. (La conjonctivite d'origine lacrymale chez les nouveau-nés et les dacryocystites congénitales.) *Ann. de Méd. et Chir. infantiles*, 1 août, 1905.
- (9) Antonelli.—Orbital cellulitis and purulent dacryoadenitis consecutive to post-influenzal otitis media. (Cellulite orbitaire et dacryoadenite purulente, suites d'otite moyenne post-grippale.) *Ann. de Méd. et Chir. infantiles*, 1 septembre, 1905.
- (10) Clarke, Ernest.—The treatment of lacrymal obstruction. *The Polyclinic*, October, 1905.
- (11) Jocqs, R.—Dacryocystitis following the operation for maxillary sinusitis. (Dacryocystite consécutive à l'opération de la sinusite maxillaire.) (Ein Fall von Dacryocystitis nach der operation eines Empyems der Kieferhöhle.) *La Clinique Ophtalmologique*, 25 septembre, 1905, and *Die Ophthalmologische Klinik*, November 5, 1905.

(1) Articles by Augiéras, of Laval, describing the nature of dacryocystitis and the various forms of treatment applicable to it.

R. J. COULTER.

(2) In cases of dacryocystitis complicated by pocketing of pus in front of the lacrymal sac Augiéras has obtained good results by making a free opening between the pocket and the sac. He does this without making a skin incision by passing a Weber knife into the sac and pressing the tissues with a finger against its cutting edge, which is directed forwards. This operation is followed by the usual probings and injections. R. J. COULTER.

(3) A dissipated man of 42 years presented a fluctuating tumour in the upper and outer portion of the right orbit, first noticed six months before Stieren was consulted. It extended into the lacrymal fossa. Symptoms of inflammation were absent. The tumour, which was encapsulated, was removed with a satisfactory surgical result. It measured 32mm. by 18mm. by 12mm., and upon microscopical examination was found to be typical adenoma with a general tendency towards cyst formation.

(4) Chappé describes the case of a woman, aged 48 years, under the care of Morax, who had—(1) lupus of the left nasal cavity; (2) a swelling, the size of a hazel nut, in the region of the left lacrymal sac, with a patch of lupus on the skin in front of it; (3) an enlarged pre-auricular gland on the left side. Although the lacrymal tumour was adherent to the upper part of the superior maxilla, it was easily removed without injuring the lacrymal sac which was displaced inwards, the diseased skin and the pre-auricular gland being excised at the same time. The operation was followed by temporary facial paralysis. Microscopic examination and inoculation experiments proved the paralacrymal tumour to be of a tuberculous nature. Chappé considers that it was secondary to the lupus of the nasal mucous membrane.

R. J. COULTER.

(5) Leblond reports a couple of cases in which the Caldwell-Luc operation for the radical cure of antral disease was followed by dacryocystitis—in the first after an interval of seven and in the second after three weeks. Both cases were treated by removal or destruction of the distended lacrymal sac, Leblond traces the lacrymal affection to an ascending infection *plus* injury of the lower end of the nasal canal. The latter might be produced either during the curettage of the sinus or during the creation of an artificial hiatus, both of which procedures are carried out in the course of the Caldwell-Luc operation. Individual anatomical peculiarities also probably play a part.

S. S.

(5A) Wicherkiewicz discusses acute inflammation of the lacrymal gland, reports (very imperfectly) two cases, and concludes his communication with the following words:—"Acute dacryoadenitis manifests itself under two forms, both well characterised from the etiological, clinical, and diagnostic point of view. The first is an acute inflammation produced by injury, chemical or thermic agents, or by local infection. It is unilateral, and usually terminates in suppuration. The second form is the result of a general infection, usually provoked by microbes or their toxins, after influenza, malaria, measles, or gonorrhœa, and occasionally even by secondary syphilis. It is often accompanied by simultaneous inflammation of the salivary glands, and ordinarily terminates in resolution." S. S.

(6) Under the name *Dacryocystite congénitale atténueée*, Péchin describes an affection of newly-born babies that must be familiar to every practitioner. It attacks children in good health, born, after a normal labour, of healthy parents. It is characterised by regurgitation of muco-pus from the lacrymal puncta when pressure is made over the lacrymal sac. There is no inflammatory reaction, but a little muco-pus is present at the inner canthus of

the affected eye or in the conjunctival fornices. The conjunctiva may be normal or somewhat hyperæmic. The eyelids are neither reddened nor swollen, although their free edge is apt to be congested. The condition, which is essentially due to a congenital imperfection of the nasal duct, together with a super-added infection of what Péchin calls the *meconium nasal* (*i.e.*, the epithelial debris blocking the canal) tends to sudden and spontaneous recovery, after lasting, it may be, for several months. Péchin has succeeded in finding staphylococci only in the mucopurulent secretion from affected eyes. The treatment recommended includes massage over the region of the lacrymal sac, the use of lotions to the conjunctiva, and in cases that refuse to yield to such simple measures, injections into the lacrymal passages or the introduction of a probe. Details of eleven cases are given.

S. S.

(7) It is not likely that there should be agreement about the mechanism of the production of disease when there is so much diversity of opinion concerning the normal excretion of the tears. The only point of general acceptance is that in some way winking aids the passage. Montano thinks that the flow is due entirely to the shape and formation of the different passages, the canaliculi taking up the tears by their capillary action and pouring them out into the nasal duct. There can be, then, two main disturbances of excretion, one which interferes with the capillary action, and the other which prevents the free passage of the tears in the excretory duct. The distinction is important, because in the epiphora due to the first cause there is no fear of infection of the sac; in the second form infection is only a matter of time.

HAROLD GRIMSDALE.

(8) Antonelli describes six cases of conjunctivitis in newly-born children connected with a congenital impermeability, of the lacrymal passages. The researches of Dolbeau, Vlacovich, Cirincione, Rochon-Duvigneaud, and others have shown that in the fœtus and newly-born babies an impermeability, absolute or relative, may exist at the lower end of the naso-lacrymal canal. This may be due to a mucous fold (Bochdalek's valve), to a membrane obstructing the orifice, or, rarely, to an error of development by reason of which the inferior portion of the canal is wholly wanting. The lacrymo-nasal canal is represented in the embryo of two or three months by a cellular cord, invaginated and included between the external frontal process and the superior maxillary process. At about the third month of intra-uterine life this rod becomes hollow by destruction of its axial cells, while the peripheral cells are transformed into the epithelial elements which line the fibrous wall. From about the fourth month the canal should be formed, and the remains of the

atrophied axial cells should be cast off. If the process is retarded there is already a cause of transient and relative impermeability of the canal. If Bochdalek's valve is imperforate, the cellular débris accumulates, so that sometimes the mucous membrane of the lower end of the canal is distended as a vesicle projecting into the meatus of the nasal fossa. Should the impermeability persist towards the end of intra-uterine life, or after birth, the retention of débris augments and becomes the cause of veritable inflammation when an infective element is added to it. The duration and the nature of the obstruction, the kind of accumulated material, the description of the infection explain the variety of the clinical forms met with in such cases. The micro-organisms found in cases of the kind include gonococci, staphylococcus aureus, pneumococcus, micrococcus tetragenus, and Fraenkel's diplococcus (*sic!*). As regards the diagnosis of the condition, Antonelli recommends pressure over the region of the lacrymal sac, the use of fluorescein, and the injection of fluid through one of the lacrymal puncta, first slightly dilated by the passage of a fine probe.

S. S.

(9) After an attack of influenza a baby girl of 11 months developed middle-ear disease, and several days later oedema of the preauricular gland and the eyelids on one side. A week later, fluctuation was felt in the region of the lacrymal glands and necrotic pieces of the gland, together with greenish pus of foetid odour, were evacuated by incision. Recovery was slow. Antonelli considers that his case was one of orbital cellulitis, associated with purulent dacryocystitis, both probably the outcome of a staphylococcal infection. He further believes that a close connection subsisted between the otitis media, on the one hand, and the cellulitis, on the other, and he traces the anatomical route followed by the infection.

S. S.

(10) Clarke believes that the "only successful method of curing lacrymal obstruction is by the use of a style passed into the nasal duct through the slit-up canalicus." The style should be worn from six weeks or to three months or more. Clarke uses a solid silver or a silver-gilt nail-head pattern, generally known as the "Walton style."

(11) Jocqs discusses the etiology, pathogenesis, and treatment in those cases of dacryocystitis which have been known to follow on the Caldwell-Luc operation on the antrum. He refers to two cases published by Leblond (*Arch. d'ophtal.**, mai, 1905) in which dacryocystitis came on several weeks after the antral operation, in which the nasal duct could not be cleared, and in which, therefore, extirpation of the sac had to be carried out. In Jocqs' own case dacryocystitis followed only four days after the

* For abstract see p. 237 of this number of THE OPHTHALMOSCOPE.—Editors.

antral operation, and he was able to treat the case by probing and injections. Jocqs considers that the obstruction of the nasal duct is due to its involvement in the antral field of operation, rather than to an ascending infection.

ERNEST THOMSON.

V.—TRACHOMA.

- (1) Fukala, C. V.—Trachoma among the ancient Greeks and Romans. *Archives of Ophthalmology*, July, 1904.
- (2) Grönholm, V.—On the distribution of trachoma and blindness in Finland. (*Ueber die Verbreitung des Trachoms und des Blindheit in Finland.*) *Zeitschrift für Augenheilkunde*, September, 1904.
- (3) Hatzidakis.—Trachoma in the island of Crete. (*Le trachome dans l'île de Crète.*) *Ann. d'oculistique*, T. CXXXII, p. 284, octobre, 1904.
- (4) Rockliffe, W. C.—A peculiar outbreak of granular ophthalmia. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 34.
- (5) Barreto.—The influence of race and altitude on trachoma. (*El tracoma ó conjuntivitis granulosa. Influencia de las altitudes y de las razas.*) *Anales de Oftalmología*, Diciembre, 1904.
- (6) V. Gronholm.—About trachoma and blindness in Finland. *Finska Lakaresällskapits Handlingar*, 1904.
- (7) Cohn.—Trachoma cured by the use of radium. (*La guarigione del Tracoma mediante il Radio.*) *La Clinica Oculistica*, Gennaio, 1905.
- (8) Boldt, J.—Kuhnt's method of enucleating the tarsus in the treatment of trachoma. (*Kuhnts Knorpelausschälung in der Trachombehandlung.*) *Zeitschrift für Augenheilkunde*, Juli, 1905.
- (9) Poulard.—The contagion of trachoma. (*Contagion du Trachome.*) *Archives d'ophtalmologie*, aôut, 1905.

(1) Fukala makes the somewhat startling statement that of the 1,560 millions inhabiting the world, no fewer than 30 millions suffer from trachoma. The disease was epidemic in ancient Rome at the time of Christ. It prevailed extensively among the plebeians, but the patricians were by no means exempt. Cicero (106 B.C.) and Pliny the younger (A.D. 62) were afflicted. Many quotations from ancient authors are

adduced by Fukala in support of these and other statements. The article concludes with some facts and figures concerning the relative immunity enjoyed by negroes and mulattoes.

(2) **Grönholm** shows by a series of statistical tables that the Finnish population is one of the most trachomatous in Europe, 3.7 per cent. suffering from this disease. It is curious to notice that along the south coast and elsewhere, where the Swedes are in residence, trachoma is almost entirely absent, and in the interior of the land Swedish settlements are almost wholly free from trachoma. Blindness in Finland was apparently very common in 1864: 28.7 in 10,000 were blind. The proportion sank to 11.9 per 10,000 in 1890. (*England* 7.6 per 10,000.)

A. LEVY.

(3) In the treatment of trachoma, which is very common in Crete, **Hatzidakis** has obtained the best results from Galezowski's operation of excision of one or both of the *culs-de-sac*. Having observed in several of the cases so treated, considerable irritation caused by excrescences starting from pieces of conjunctiva which had been left behind, he has in twenty cases removed the entire conjunctiva (*sic!*), dissecting it from all the periphery of the eyelid with a bistoury or with scissors. He considers that by this operation, followed by the application of warm compresses, trachoma can be definitely cured in from three to four weeks.

R. J. COULTER.

(4) **Rockliffe** describes seven cases of ?granular ophthalmia which arose in the course of a few days amongst the medical and nursing staff of the Hull Royal Infirmary. All the sufferers had been in contact with a child suffering from ordinary diphtheria.

(5) **Barreto** thinks the influence of altitude less and the influence of race greater than has hitherto been supposed.

HAROLD GRIMSDALE.

(6) Trachoma is very frequent in Finland, and is the principal cause why this country has so many blind people. In 1864, Finland had 28.7 blind in every 10,000 inhabitants. The year 1900 the number had decreased to 11.9 per 10,000. This considerable diminution depends principally on the decrease of trachoma. There is, however, still in Finland, with its 2½ million inhabitants, about 100,000 persons suffering from trachoma, and of its 3,227 blind people about 20 per cent. are blinded by this disease.

(7) As it has already been ascertained that radium acts on tumours, arresting their growth and bringing about their atrophy, it was quite natural to hit on the idea of employing the same remedy for granulations of the conjunctiva. **Cohn** uses 1 milligram of the bromide of radium in a glass tube 3 centimetres long, and 3

millimetres in diameter. With the rounded extremity of this tube charged with radium, he touches each granulation of the upper and lower lid, and after a few sittings the cure is effected. He states that he has cured three cases by this means in a very short time, without causing any pain.* CHARLES MANCHÉ.

(8) Boldt, in this paper, which is of a polemical nature, dwells upon the advantages to be derived from the employment of Kuhnt's well-known methods of treating trachoma. A. LEVY.

(9) Poulard relates the case of a family of father, mother, and four children, every one of whom was affected with trachoma. Moreover, the mother and daughter of a second family occupying the same dwelling were also affected with the disease. The two families were on terms of intimacy. The disease had probably been transmitted by the fingers of the children or by the towels used in common. S. S.

VI.—PURULENT OPHTHALMIA.

- (1) Golesceano.—Prognosis and duration of purulent ophthalmia. (*Prognostie et durée de l'ophtalmie purulente.*) *Recueil d'ophtalmologie*, juillet, 1904.
- (2) Alvarado.—Further notes on the treatment and prophylaxis of ophthalmia neonatorum. (*Mas sobre el nitrato de pláta en la profilaxia y tratamiento de la oftalmia purulenta de los recien nacidos.*) *Anales de Oftalmología*, Octubre, 1904.
- (3) Labusquière, R.—Ophthalmia neonatorum. (*Oftalmie des nouveau-nés.*) *Ann. de Méd. et Chir. infantiles*, 15 noviembre, 1904.
- (4) Wintersteiner.—Remarks upon the frequency and prevention of blennorrhœa neonatorum. (*Bemerkungen über Häufigkeit und Verhütung der Blenorhœa neonatorum.*) *Wiener Klin. Wochenschr.*, 1904, Nr. 37, p. 988, and *Wiener Klin. Rundschau*, 27 November, 1904.
- (5) Alvarado.—A further contribution to the subject of treatment and prophylaxis of ophthalmia neonatorum by silver nitrate. (*Mas sobre el nitrato de pláta en la profilaxia y tratamiento de la oftalmia purulenta de los recien nacidos.*) *Arch. Oft. Hisp.-Americ.*, Enero, 1905.

*Cohn's original communication appeared in the *Berliner Klin. Wochenschr.* No 1, 1905, and was abstracted in THE OPHTHALMOSCOPE, for February, 1905, p. 39.—Editors.

- (6) Pfalz.—Treatment of *blennorrhœa neonatorum*. (*Zur Behandlung der Blennorrhœa neonatorum. Ein paar Wörte zur Ehrenrettung des Protargols.*) *Zeitschrift für Augenheilkunde*, März, 1905.
- (7) Urata, T.—Experimental investigation of the value of the Credé method. (*Experimentelle Untersuchungen ueber den Wert des sogenannten Credéschen Tropfens.*) *Zeitschrift für Augenheilkunde*, März und April, 1905.
- (8) Ramos, José.—Purulent ophthalmia as a cause of blindness in Mexico. (*La oftalmia purulenta como causa de ceguera en Mexico.*) *Anales de Oftalmología*, Mayo, 1905.
- (9) Edgar, J. Clifton.—What means does the modern obstetrician employ to prevent ophthalmia of the newly born? *Medical News*, 23rd September, 1905.

(1) From an analysis of 175 cases of purulent ophthalmia, Golesceano draws the following conclusions.—The disease is more common in male than in female children, and in the left than in the right eye, and in bad presentations, which by prolonging labour, predispose to infection. The disease may appear at birth, but it generally has an incubation period of four and sometimes of six days. The second eye may be attacked within 12 hours to 6 days, and even 25 days after the first. Serious complications generally occur during the second and third weeks. Corneal infiltration or abscess may supervene between the 8th and 20th days. Greyish infiltration of the tarsus and shallow elongated ulcerations of the tarsal conjunctiva may be observed. These ulcers are of short duration and leave no mark. Hypertrophy of the nasopharyngeal lymphoid tissue and ozæna tend to prolong the ophthalmia. Defective vitality and premature birth of the child probably influence the character of the ophthalmia. Prophylactic instillations of lime juice or of nitrate of silver do not materially alter the course of the disease. The usual duration of ophthalmia treated early is 15 to 24 days. Cases which have been going on for 10 to 20 days require 10 to 25 days treatment, and when the suppuration has lasted more than 20 days, treatment must be continued for about a month. Purulent ophthalmia which is of more than a month's standing will require as many days treatment as the suppuration has lasted. The author insists on the necessity of continued and careful treatment for some time after the apparent disappearance of all traces of suppuration, as relapses are liable to occur. In some cases there is a period of excessive virulence, during which all treatment is unavailing. This period, which may

last from 4 to 6 days, requires careful management, by irrigation with boiled water only, cauterisation and strong antiseptics being avoided until it has been tided over. Attention should be given to the nose in all cases. Instillations of mentholated oil are recommended as a useful adjunct to the ocular treatment.

J. JAMESON EVANS.

(2) **Alvarado** hopes by force of repetition to awaken every medical man to the fact that blindness from ophthalmia neonatorum is preventible, and that every eye lost is a disgrace. We can only wish him success! HAROLD GRIMSDALE.

(3) **Labusqui  re's** article resolves itself into a careful review of the communication upon ophthalmia neonatorum made by Stephenson to the Obstetrical Society of London in 1903 (see THE OPHTHALMOSCOPE, October, 1904, p. 419).

(4) **Wintersteiner** believes that Crede's method, even when properly carried out, does not in every case prevent the appearance of blennorrh  ea. Indeed, he considers that a prophylaxis that confines itself to a single cleansing of the eyes and instillation of silver is at best a half-measure. Ophthalmia neonatorum can be rooted out only on condition that preventive measures extend over the entire period during which the woman is confined to bed. Wintersteiner confesses himself to be a thorough-going adherent of Stellwag's method of treatment, namely, by the frequent washing out of the conjunctival sac with a solution of potassium permanganate, 1:1,000, together with the application once or twice a day of a 2% solution of silver nitrate. With this method Wintersteiner has always obtained complete success, so that he sees no cause to abandon it or to replace silver nitrate by the newer compounds of silver.

(5) This article appeared in the *Anales de Oftalmologia* for October, 1904, and is noticed above. HAROLD GRIMSDALE.

(6) **Pfalz** takes strong exception to the statement in the new *Graefe-Saemisch Handbuch*, namely, that protargol is useless in the treatment of ophthalmia neonatorum. He himself has during the last six years used protargol almost exclusively in this affection, and is well satisfied with the results. He generally uses a 5 per cent. solution, occasionally 10 per cent., but never stronger, and he insists on a solution freshly prepared with cold water. Warmth and keeping decompose the salt, rendering it not only useless but also irritating. His method of treatment consists in washing out the conjunctival sacs every 1 to 3 hours with a 1 in 150 solution of potassium permanganate, and 3 times a day a few drops of a 5 per cent. protargol solution are instilled. This is done by the parents, and leads to a rapid and thorough cure of the disease.

A. LEVY.

(7) **Urata** has collected extensive statistics on this subject and has made many experiments with various organisms and various drugs, and comes to the conclusion that the 1 per cent. solution of silver nitrate, used as Credé advised, is the most generally satisfactory and the most reliable. He advises, however, in addition to these drops, a previous cleansing of the skin of the lids and surrounding parts with a lukewarm solution of some mild antiseptic, such as boric acid or oxycyanide of mercury (1-1,000 solution). A. LEVY.

(8) The prevention of purulent ophthalmia of the new-born is especially difficult in countries like Mexico, where the percentage of illiterates is very high. It is almost impossible to educate the poorer sections of the community as to the danger of allowing this disease to go untreated. But the attempt should be made by utilising all existing philanthropic societies, and by calling the Church to aid, much may be done.

HAROLD GRIMSDALE.

(9) **Edgar's** faith in the prophylactic power of Credé's method is so strong that he attributes all apparent negative or ill-effects of the method to the presence of ante-partum infection of the eyes, or to unskilled application, or to improper or inert solutions.

VII.—DISEASES AND INJURIES OF THE IRIS.

- (1) **Weiss, L. and Klingelhoeffer, W.**—Ruptures of the iris. *Archives of Ophthalmology*, January, 1904.
- (2) **Stoewer.**—A case of glaucoma with total atrophy of the iris by haemophthalmus traumaticus. (*Ein Fall von Glaucom und totaler Irisatrophie durch Haemophthalmus traumaticus.*) *Klinische Monatsblätter für Augenheilkunde*, Februar, 1904, p. 143.
- (3) **Wicherkiewicz.**—Can the iris, after severance from its ciliary attachments, heal spontaneously? (*Kann eine von ihrem ciliaransatz abgelöste Iris spontan wiederanheilen?*) *Klinische Monatsblätter für Augenheilkunde*, 1904, p. 363.
- (4) **Vidéky, R.**—A case of purulent iridocyclitis with retrobulbar and cerebral abscesses. (*Ein Fall von Iridocyclitis purulenta, Abscessus retrobulbaris und Abscessus cerebri.*) *Zeitschrift für Augenheilkunde*, Mai, 1904.

- (5) Fejer, J.—Contribution to the absorption of detached bits of the iris. (Beiträge zur Resorption des abgerissenen Irisgewebes durch den Augapfel.) *Centralbl. f. prak. Augenheilkunde*, Oktober, 1904.
- (6) Praun, E.—Tearing off of the posterior pigment layer of the iris near its ciliary origin and prolapse of the over-turned flap through the pupil into the anterior chamber. (Abreissung des hinteren Blattes der retinalen Pigmentschicht der Iris nahe ihrem ciliaren Ursprunge und Vorfall des umgestülpten Lappens durch die Pupille in die Vorderkammer.) *Centralb. f. prak. Augenheilkunde*, Oktober, 1904.
- (6A) Schieck, F.—Upon pigmented cysts on the posterior surface of the iris. (Ueber pigmentierte Cysten an der Iris hinterflaeche.) *Klin. Monatsbl. für Augenheilkunde*, 1904, II, p. 341.
- (7) Lawson, Arnold.—A case of traumatic aniridia (right). *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 255.
- (8) Moisonnier.—A case of tuberculous irido-cyclitis. (Observation d'un cas d'irido-cyclite tuberculeuse.) *L'ophtalmologie provinciale*, novembre, 1904.
- (9) Sonder.—Gonorrhoeal iritis. (De l'iritis blennorrhagique.) *La Clinique ophthalmologique*, 10 décembre, 1904.
- (10) Le Roux, H.—On a case of unilateral serous Tenonitis with quiet iritis. (Sur un cas de ténonite sèreuse unilatérale, avec iritis torpide.) *La Clinique ophthalmologique*, 25 décembre, 1904.
- (11) Mauzutto, G.—A few cases of formation of new pigment on the anterior surface of the iris. (Einige Fälle von Pigmentorenbildung auf der Vorderfläche der Regenbogenhaut.) *Zeitschrift für Augenheilkunde*, Januar, 1905.
- (11A) Chauvin.—The causation of hyphæma in iritis. (Séméiologie de l'hypohéma chez les iritiques.) *Thèse de Paris*, mars, 1904, and *Rev. générale d'ophthalmologie*, janvier, 1905.
- (12) Allan, John.—Heterochromia iridis. *British Medical Journal*, May 6th, 1905.
- (13) Campbell, E. Kenneth.—Oral sepsis as a cause of iritis. *Lancet*, July 22nd, 1905.
- (14) Mayou, M. S.—Cyst of the pigment epithelium of the iris. *Trans. Ophthalmological Society*, Vol. XXV (1905).

(1) Weiss and Klingelhoeffer analyse the literature of traumatic rupture of the iris, recount five new cases, and discuss the mechanism, etc., of these injuries. Such ruptures are commoner than might be supposed from the limited number of cases reported. In almost all cases the traumatism has been severe enough to produce other lesions of the eye. For example, in 7 only out of 39 cases was the injury to the iris uncomplicated. In cases where it was possible to determine the direction of the blow, it was found that the rupture of the iris was on the side opposite from the point of impact. Dilatation of the pupil and paralysis is the rule after these injuries. A permanent reduction in the tension of the eye has been noticed in some of the cases.

(2) An interesting feature of Stoewer's case was the profuse haemorrhage in the anterior chamber and vitreous body, which occurred, first, two days after a contusion of the eye, and then, again, after an iridectomy. It was not attributable to haemophilia. The author considers that the trauma had predisposed the vessels of the iris and ciliary body to haemorrhage. The glaucoma he regards as a consequence of occlusion of the angle of the anterior chamber. A short time after the bleeding the iris showed pronounced atrophy. Stoewer recommends sclerotomia posterior, as also in glaucoma in patients suffering from haemophilia. A. BIRCH-HIRSCHFELD.

(3) Wicherkiewicz communicates an interesting case in which an irido-dialysis of traumatic origin was healed by dilating the pupil (atropin, scopolamin, cocaine).

(4) Vidéky reports the case of a workman, *æt.* 57 years, who hit the right side of his forehead and right eye against a ladder. The swelling and pain in the eye which followed soon disappeared, and the patient only came to the hospital four weeks after the accident, suffering from pain and blindness. The condition found was a purulent iridocyclitis, and on account of the exophthalmos, a retrobulbar abscess was thought probable. The eye was removed, and an orbital abscess evacuated. The patient improved rapidly, but on the tenth day when about to leave the hospital, he became suddenly unwell, the temperature rose, vomiting set in, coma supervened, and three hours later he died. At the *post-mortem* examination the orbit and optic nerve were found free. In the anterior part of the right frontal lobe was an abscess with smooth walls. The lateral, third, and fourth ventricles were filled with a sero-purulent fluid, and the parts round about softened. The blood-sinuses were quite clear. The author discusses the relationship of these two abscesses to each other, and decides that neither could have caused the other, but that they both

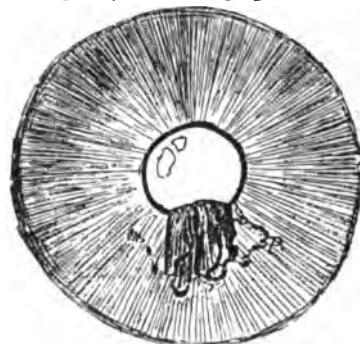
must be due to a common cause ; the injury having brought about a localized diminished resistance. A foetid bronchitis from which the patient suffered would serve as the distributing focus of the septic organisms.

A. LEVY.

(5) **Fejer** reports a case of a man, *aet.* 37 years, who was hit in the eye by a blunt instrument, and it was found that the iris was completely detached all round, and some parts of the lens were opaque and projected forwards into the anterior chamber. Bits of the iris could be seen to cover the lens, and it is these bits which were absorbed while the patient was under observation, leaving only a few pigmented spots on the anterior surface of the crystalline.

A. LEVY.

(6) **Praun** relates the case of a female patient, 50 years of age, who was hit in the eye by a piece of wood. On examining the eye, a foreign body was seen hanging free from the pupil into the anterior chamber, which was diagnosed as the posterior pigment layer of the iris (*see* figure). Both pupils were of equal size and



reacted equally. The eyes were myopic (about 15 D.) and there was on both sides a central retino-choroiditis. Apparently the iris pigment was peculiarly brittle, and broke off when the eyeball was struck from below.

A. LEVY.

(6A) **Schieck** describes two interesting cases of cysts of the pigment layer of the iris. The details must be read in the original.

A. BIRCH-HIRSCHFELD.

(8) **Moissonnier's** patient, a boy, *aet.* 11 years, with tuberculous stigmata, had kerato-iritis and minus tension in the left eye. Later, two yellowish-grey granulations formed in the iris, and a scleral staphyloma developed over the insertion of the rectus externus. The eye was removed, and on pathological examination massive tuberculous irido-cyclitis was found, localised chiefly in the ciliary region.

R. J. COULTER.

(9) **Sonder**, after recapitulating the literature on this subject relates a case of his own.

ERNEST THOMSON.

(10) **Le Roux** records a case of serous Tenonitis with iritis following childbirth, and described as "the first manifestation of a rheumatic affection, or rather of a very severe pseudo-rheumatic infection." Elevation of temperature, right hemiplegia, delirium, coma; death in about three weeks after the onset of the Tenonitis. No autopsy was obtained.

ERNEST THOMSON.

(11) The rarity of these cases is well illustrated by the fact that only five similar ones are recorded, all in the *Transactions of the Ophthalmological Society of the United Kingdom*. **Mauzutto** adds four new cases of his own. In all four there was a history of previous injury, following which the eyes became blind, and at the same time there was a slow development of a layer of pigment on the anterior surface of the iris. The author was unable to make any microscopic examination of this condition.

A. LEVY.

(11A) In this work, inspired by De Lapersonne, **Chauvin** admits, amongst patients suffering from iritis as causes of hyphæma, the principal diatheses (gout, rheumatism, syphilis), but especially the primordial causes of haemorrhage in general, such as vascular changes, disturbances of arterial tension, alterations in the blood, disorders of vaso-motor innervation, and local changes of the iris, due to traumatism or former attacks of inflammation. Chauvin reports a couple of cases where the vascular alterations appeared to be due to syphilis, and two others due to arterial tension from aortic insufficiency and menstrual troubles respectively. To these Chauvin adds a case of iritis with hyphæma in a patient who had suffered from iritis seven years previously, and another case in a patient whose pupil was obstructed with exudation as a consequence of an operation for cataract performed thirteen years before.

(13) **Campbell** believes that pyorrhœa alveolaris (Rigg's disease) is an occasional cause of iritis. He has met with three such cases, where syphilis and rheumatism could be eliminated as causal factors.

VIII.—SERO-THERAPY.

- (1) **Bérard**.—On the use of Dr. Doyen's anti-staphylococcic serum in ophthalmic practice. (*De l'emploi du sérum anti-staphylococcique du Dr. Doyen en oculistique.*) *L'Ophthalmologie Provinciale*, II, p. 41, June, 1905.
- (2) **Blanco, Sanz**.—Serotherapy in ocular suppuration. (*La suero-terapia en las supuraciones oculares.*) *Arch. de Oftal. Hisp.-Amer.*, Octubre, 1905.

(3) **Darier, A.**—On the employment of anti-staphylococcal serum in the treatment of dacryocystitis. (*De l'emploi du sérum anti-staphylocoque dans le traitement des dacryocystites.*) *La Clinique Ophtalmologique*, 25 octobre, 1905.

(1) **Bérard** gives notes of two cases of dacryocystitis, one of furunculosis accompanied by chemosis, and two of hypopyon-ulcer, which he claims to have cured by injections of Doyen's anti-staphylococcal serum. The cases of dacryocystitis had been unsuccessfully treated by the routine methods for considerable periods, while in one of them, and in the two cases of ulcer, intermissions of the injections were followed by relapses, which disappeared when the treatment was resumed. Bérard gives intra-muscular injections of 5 c.cm. in adults, and 25 c.cm. in children of 4-14 years, repeated every two or three days if necessary. He also uses strong injections, as a precaution before operating, if there is a purulent discharge present which, owing to urgency or any other cause, cannot be cured, or if the surroundings of the patient are unsatisfactory.

R. J. COULTER.

(2) After a short preface, in which he points out the unsatisfactory results following treatment by cautery or subconjunctival injections of antiseptics, **Blanco** gives some details of cases in which he has given injections of anti-streptococcal serum for the relief of hypopyon; in all there are eighteen, and the good success obtained impels him to publish this note. The patients suffered for the most part from hypopyon ulcer, but in one instance an eye threatening suppuration after cataract extraction was saved by these injections. The amount of fluid given was from 0·5 cc. to 1·0 cc.; it was given by preference subconjunctivally, but where the injections could not be repeated with sufficient frequency under the conjunctiva, they were assisted by injection into the subcutaneous tissue of the loins.

HAROLD GRIMSDALE.

(3) **Darier** has used Doyen's anti-staphylococcal serum in a number of cases of dacryocystitis, injecting from 2·5 to 5 cc. into the buttock. Some cases improved at once, and the secretion lost its purulent character, in others the results were not so marked. Lacrymation persisted. The article concludes: "Let us wait and see if this cure will be more lasting than those obtained by injections of argyrol, etc." ERNEST THOMSON.

IX.—TREATMENT.

(Second Notice.)

- (1) Abadie, Ch.—On the forms of glaucoma characterised by intermittent crises and on their treatment. (Des formes de Glaucome à crises intermittentes et de leur traitement.) *Annales d'oculistique*, avril, 1904.
- (2) Claiborne, J. H. and Coburn, E. B.—Experiments to determine the value of collargolum and antistreptococcic serum in infected wounds of the eye. *Medical News*, August 6th, 1904.
- (3) Galezowski, X.—Ocular syphilis and its treatment. (La syphilis oculaire en général et son traitement.) *Recueil d'ophtalmologie*, septembre, 1904.
- (4) Pourquier.—The ocular complications of smallpox and treatment. (Complicaciones oculares de la viruela y su tratamiento.) *Anales de Oftal.*, Septiembre, 1904.
- (5) Abadie, Charles.—Clinical and therapeutic reflections on the subject of choroido-retinitis. (Considérations cliniques et thérapeutiques sur les choriorétinites.) *La Clinique ophtalmologique*, 25 octobre, 1904.
- (6) Beauvois, A.—Severe ocular syphilis; treatment by mercurial inunctions—cure. (Syphilis oculaire grave; traitement par les frictions mercurielles—guérison.) *Recueil d'ophtalmologie*, novembre, 1904.
- (7) Williams, Charles H.—A severe case of uveitis treated with radium. *Trans. American Ophthal. Society*, Vol. X, Pt. II. (1904), p. 269.
- (8) Sattler.—Treatment of ablatio retinæ. *Deutsche med. Wochenschrift*, 1905, Nos. 1 and 2.
- (9) De Lantsheere.—A case of rodent ulcer treated with the X-rays. (Un cas d'ulcus rodens traité par les rayons X.) *Bull. de la Soc. belge d'ophtal.*, No. 17, 1905, p. 12.
- (10) Ostwalt.—Baths of superheated air in ophthalmic practice. (Des bains d'air sec surchauffé en oculistique.) *Ann. d'oculistique*, T. CXXIII, p. 197, mars, 1905.
- (11) Senn, A.—Cure of a primary (progressive) keratoconus by subconjunctival injections. (Rückbildung eines primären (progressiven) Keratokonus durch subkonjunktivale Injektionen.) *Woch. f. Ther. u. Hygiene des Auges*, 27 April, 1905.

(1) Abadie enters an energetic plea for the performance of iridectomy in the prodromal stages of glaucoma. Such cases are characterised by crises, separated by intervals of complete remission, in which the vision and the fields are normal. The crises are marked by pain in and around the eye, haloes, or obscurations. They may last only for one or two hours. The condition, however, after persisting it may be for years eventually merges into confirmed glaucoma. Myotics possess no curative powers, although they relieve the symptoms. Abadie believes that the prodromata often escape the attention of practitioners, or are assigned to a wrong cause. H. DE V.

(2) The conclusions reached by **Claiborne** and **Coburn** are as follows :—(1) Collargol is ineffectual in preventing the spread of purulent processes in the eyes of rabbits, whether used intravenously or by injection into Tenon's capsule. (2) Anti-streptococcus serum does not appear to exercise any favourable influence on purulent processes in rabbits' eyes.

(3) By comparative clinical tests with the different remedies used in syphilis—including calomel and other mercurial pills, Gibert's syrup, potassium iodide, subcutaneous and intramuscular injections of " huile grise" and cyanide of mercury—**Galezowski** has been convinced of the superiority of inunctions with Neapolitan ointment or his hydrargyrine capsules (Petit) over all other methods and remedies. The hydrargyrine, which has a lanoline base, appears to be more easily absorbed and gives more uniform results than the Neapolitan ointment. Importance is laid by the author on the method of application, which should be as follows :—the part to be rubbed should be previously washed with soap and tepid water so as to allow of the maximum absorption. This precaution is indispensable. The ointment—dose of which should not exceed 2 grammes—is then placed on the part washed and then rubbed in for about five minutes—until the skin becomes almost dry. The part is then covered and the ointment left on over night. In the morning the part is washed clean of the ointment. The region of application must be changed every time, so as to prevent irritation of the skin. The treatment should be continued for a long time and the system should be kept impregnated with mercury. As potassium iodide aids the elimination of mercury, Galezowski never gives these two drugs together. Further, he has found that potassium iodide is not only useless but harmful in the treatment of ocular syphilis. The prolonged administration of mercury by inunction can be maintained by following these instructions :—apply inunctions for ten days, then give five days rest. Repeat these till 40 inunctions have been made and then give 10 to 15 days' rest. Treatment should never be suspended for more than three weeks,

and it should be continued for two years. The mouth and teeth must be kept in good order, and in women the inunctions must be discontinued during menstruation.

J. JAMESON EVANS.

(4) **Pourquie** has not found these lesions so amenable to methylene blue as Courmont and Rollet did during the Lyons epidemic, and he prefers to use the galvano-cautery at a very early stage of the pustule, or even in the vesicular stage.

HAROLD GRIMSDALE.

(5) **Abadie** is convinced that retinitis, irido-choroiditis, etc., have become more common during the thirty years in which he has been in practice. While admitting that syphilis, hereditary or acquired, is responsible for a large number, he holds that there is still an increase apart from syphilis. This increase is due to the exigencies of modern life and consequent diminished resisting power of the organism to microbial influences. There is no use attempting to classify these diseases according to ophthalmoscopic findings, nor is the prognosis to be guided by the apparent severity of the lesions. After contrasting the atrophic appearance of the disc in choroiditis with that in true atrophy, Abadie draws attention to the similarity between some forms of choroido-retinitis and retinitis pigmentosa, and finishes by recommending mercurial injections—intramuscular or intravenous—in all cases of choroido-retinitis whatever may be their origin.

ERNEST THOMSON.

(6) In support of Galezowski's views on the value of inunctions, **Beauvois** describes a case from Galezowski's *clinique*. A young man of 23 years contracted syphilis. The primary sore healed in ten days, but he developed a bubo, and this was followed by glandular enlargements in the neck and by psoriasis. These troubles were treated by means of mercurial pills and iodide of iron at first. These proving unsuccessful, he was next submitted to injections of "huile grise" and given biniodide of mercury. Notwithstanding this active mercurial treatment, the patient developed intense plastic iritis in each eye, which was unsuccessfully treated by atropine, hot pads and injections of "huile grise" for a month. When brought to Galezowski's *clinique* he had to be led by his mother. He was now put on 2 grammes doses of mercurial inunctions to be continued for ten days and followed up by five days rest. Atropine and hot pads were continued, and potassium chlorate given as a mouth wash. In less than a month there was distinct improvement in the eyes. A fortnight later he was able to go about alone. Two months later, the iris had practically regained its normal colour, leaving only some spots, which indicated the site of former papules. Vision gradually improved with the disappearance of exudation,

and six months after the beginning of the treatment it was : R.V. = $\frac{1}{7}$ L.V. = $\frac{1}{3}$: and six months still later, it was R.V. = $\frac{4}{5}$ L.V. = $\frac{1}{2}$. J. JAMESON EVANS.

(7) **Williams** obtained considerable improvement in a case of uveitis by one minute applications of radium (1,500,000 U.) carried out for about four months two or three times a week with occasional intermissions. No other treatment was adopted. Improvement followed the employment of radium in two other cases—ulcer of the cornea and acute iritis with turbidity of the aqueous humour.

(8) **Sattler** has not confined himself in this paper merely to describing and criticising methods of treatment, but he also endeavours (so far as the knowledge at present available renders it possible) to arrive at an understanding of the genesis of so-called "spontaneous" detachment of the retina. He directs attention in the first place to the significance of fibrillary degeneration and shrinking of the vitreous body ; which, however, is not sufficient to account for sudden occurrences of retinal lesion. This is only possible to any large extent when a fissure occurs in the retina, so that a change of position takes place in the fluid within the eye, forcing up the retina from its background. Again, a retinal lesion may occur if the pressure of the vitreous body be suddenly lowered beyond a certain point. Sattler further emphasises the predisposing effect of extreme myopia, and discusses the influence of age, sex, contusions, physical over-exertion, etc. Spontaneous recovery, although seldom observed, gives most valuable therapeutic hints. As to treatment, Sattler recommends avoiding stringent measures as far as possible ; rest in bed (no pressure from bandaging), semi-darkness of the room, "lowering" treatment by inducing perspiration, aperient waters, hot foot-baths, etc. He does not consider the antiphlogistic and mercury treatments advisable, but subconjunctival injections of common salt (4%—10% solutions) at intervals of one to two days may be tried, ten to fifteen injections being given.

Operation for detached retina receives most careful consideration. Sattler recommends piercing through sclera and choroid, and thus simply allowing the subretinal fluid to escape. He considers the methods of galvano-puncture and electrolysis, with the object of securing slight local adhesions, to be worth further development. Deutschmann's method has been frequently tried by Sattler without very noticeable success, but he considers the number of cases still too small to justify any decided opinion as to its merits. Müller's operation is also mentioned (reduction of the capsule of the eyeball).

The importance of prophylaxis is emphasised, and a few hints

relative to forming an opinion on claims for compensation in cases of retinal detachment caused by accidents form the conclusion of a very interesting paper.

A. BIRCH-HIRSCHFELD.

(9) **De Lantsheere** obtained the cure of a rodent ulcer measuring 1 cm. by 6 mm., and situated at the level of the lacrymal sac, after sixteen exposures to the X-rays, each lasting ten minutes. No recurrence after three months. S. S.

(10) **Oswalt** has devised an apparatus which he calls a "thermatærophore" for applying dry superheated air to the eyes. This consists of a spiral tube fixed in a cylinder over a small Bunsen burner, and opening into a receiver of suitable size, shape, and construction, which can be kept in position in front of the eye by a spring band passing over the head. Air is pumped through the spiral, in which it is warmed, and passes into the receiver, the temperature in which can be raised more or less rapidly according to the amount of air that is allowed to pass through the tube into it. Oswalt gives one, or occasionally two, applications of the treatment daily, each lasting half-an-hour, the temperature of the air-bath being kept as high as it can be borne without causing pain, except during the last five minutes, when it is allowed gradually to fall. He finds that a temperature of 150°C., or even 175°C., is tolerated, and claims that the applications are valuable for the relief of pain and for the cure of chronic inflammations of the eyelids, cornea, and uveal tract. R. J. COULTER.

(11) **Senn** has tried the effects of subconjunctival injections in conical cornea. For this purpose he has employed frequent injections of a 2 % solution of sodium chloride, with or without the addition of dionine. He relates a successful bilateral case in a phthisical woman of 25 years. S. S.

X.—MISCELLANEOUS.

Yamaguchi.—The pathological anatomy of the eye when operated on for corneal staphyloma. (*Zur pathol. Anatomie des wegen Hornhautstaphylom operierten Auges.*) *Klin. Monats. f. Augenh.*, 1904, p. 355.

Yamaguchi's first case was operated upon by Critchett's method, and he emphasises the danger of injury to the ciliary body, and thereby the risk of inducing sympathetic ophthalmia. The second case was operated without wound suture. The patient died seven days after the operation of meningitis, which, however, did not appear traceable to the eye. In both cases necrosis of the margins of the wound occurred, with intra-hæmorrhage.

A. BIRCH-HIRSCHFELD.

Speer, Grant Gould.—Eserine: a warning. *Therapeutic Gazette*, July 15th, 1904.

Gradle, H.—Paralysis of the associated lateral movements, presumably due to acute poliencephalitis superior, ending in recovery. *Archives of Ophthalmology*, May, 1904.

Gradle bases his report upon the following case: a cigarmaker, thirty-four years old, with no obtainable syphilitic history, came for treatment on account of persisting lateral diplopia, following a cold in the head. He had slight, but almost constant vertigo. With closed eyes he staggered on walking, but could stand firmly. The knee-jerks were exaggerated. The closure of the eyelids was not perfect, and there was a noticeable fibrillary twitching of the orbicularis muscles. There was total inability to move the eyes to right or left, but converging power was normal. On looking forward or downward, the right eye deviated 10 to 15 degrees inward, the left being used for fixation. On looking up the convergent squint changed to slight divergence. There was a constant slow vertical nystagmus. There were no other ocular symptoms. The pupils and fundi were normal. Medication consisted of potassium iodide and mercury, which effected a cure of all of the symptoms except nystagmus and oscillations of the head on forcibly turning the eyes.

The writer infers from the well-defined isolated paralytic symptoms that the lesions involved the nuclei of the nerves along the floor of the aqueduct of Sylvius. Judged by the motor symptoms alone, the case could be considered a circumscribed acute poliencephalitis superior, presumably started by influenza. The motor paralyses were, however, accompanied later by reduced visual acuity in both eyes, with intact fields, good colour-sense, and no scotomata. During the eighth month of treatment, while taking large doses of potassium iodide, there came on a dimness on the right side of both eyes. The right eye soon returned to the normal, while within two months the left eye became nearly blind. The imperfect action of the index, and slow, but steady improvement, dispelled any suspicion of possible hysterical origin, and the eye finally returned to the normal. At the time of the hemianopic symptoms, both optic nerves appeared a trifle pale; ultimately the normal colour of the papillæ returned. Another possible explanation of the lesions is considered, viz., diffuse or multiple cerebral sclerosis. This does not, however, explain the motor phenomena, nor had the patient at any time other symptoms than those referable to the eye to confirm this diagnosis. JOSEPHINE W. HILDRUP.

Lodato, G.—The effects of anopsia upon the development of the visual apparatus. (Gli effetti dell'anopsia sullo sviluppo dell'apparato visivo.) *Archivio di Ottalmologia*, Vol. II, 1903, Fasc. 3-4, p. 95.

To settle the question of the existence of amblyopia ex anopsia, Lodato practised occlusion of one eye by tarsorrhaphy in four newly-born puppies, the fifth of the same litter being left under the usual conditions as a test. At the end of eight months, occlusion of the other eye was made and the first eye opened. The dogs appeared to have simple perception of light only. They were then killed, and the visual apparatus submitted to histological examination. The defect of development was obvious as regards the visual apparatus on the side corresponding with the anopsic side. There were no alterations in the retina, very slight alterations in the peripheral parts of the visual sphere, marked alterations in the primary optical centres, and these attained their highest degree towards the point of the splenial gyrus, which is in the dog the homologue of the cuneus in man. Amblyopia ex anopsia therefore exists without any doubt, and is due to veritable arrests in the development of the nervous apparatus of vision.

A. ANTONELLI.

Hirschberg, J.—Anatomical drawings of the eye in Arabian books. (Die anatomischen Abbildungen vom Auge bei den Arabern.) *Centralbl. f. prak. Augenheilkunde*, October, 1904.

Grossmann, Karl.—On the reflex image of the anterior lens capsule. (Das Sanson-Purkinje Reflexbild der vorderen Linsenkapsel.) *Recueil des Travaux Xe Congrès international d'Ophthalmologie*, Lucerne, septembre, 1904.

Grossmann, in observing the image of a light reflected from the anterior lens surface, found that the centre of this surface is more curved than the peripheral parts and that the image is in some places interrupted by black radiating lines. These lines form a figure corresponding to the architecture of the lens. Grossmann, therefore, concludes that the reflecting surface is not the epithelium itself but a layer between the capsule and the lens-fibres.

C. MARKUS.

Carroll, James J.—A case of retinitis proliferans. *Journ. of Eye, Ear, and Throat Diseases*, Sept.-Oct., 1904.

Yvert, A.—Injuries of the eye and the law regarding accidents to workmen. (Les blessures de l'œil et la loi sur les accidents du travail.) *Recueil d'ophtalmologie*, XXV (1903), p. 65.

Taylor, Lewis H. — The ophthalmometer in determining errors of refraction. *Ophthalmic Record*, January, 1903.

Friedenwald, Harry. — Improvement of vision in Amblyopia from non-use. *Ophthalmic Record*, January, 1903.

Friedenwald quotes several cases from literature where eyes, having good sight became amblyopic from strabismus, and others where a marked bettering in sight followed the use of amblyopic eyes. To the latter, the author adds a case of his own.

Gunn, R. Marcus. — Maldevelopment of suspensory ligament of lens in both eyes. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 86.

The appearances present in Gunn's case support the view that the shape and position of the lens are dependent upon the traction exerted by the suspensory ligament. The lens was dislocated downwards, and so that its upper equator was visible. Instead of being convex, the equator presented an irregular, roughly horizontal edge, with one or two sharply-pointed projections at intervals. To the apex of the projections was attached a small band of fibres of the suspensory ligament.

Rochon-Duvigneaud, A. — Prodromal pseudo-glaucoma. (Pseudo-Glaucome prodromique.) *La Clinique ophtalmologique*, 25 février, 1904.

Rochon-Duvigneaud reports a case of what he calls pseudo-glaucoma, in which constantly recurring attacks of obscured vision and with coloured halos were kept in check with myotics. The attacks, always bilateral, occurred every day unless eserine or pilocarpine were used. At the end of seven years the attacks ceased, and had not returned two years later. It is stated that the fundi, visual acuity, and fields were normal. The patient was a watchmaker, aged 53 years at the commencement of the complaint.

W. ERNEST THOMSON.

Barrett, James W., and Orr, W. F. — The wreck of the "Australia." *Lancet*, 29th October, 1904.

Becke, Arthur. — Phenomena following disease of the occipital lobe, having special regard to the eye symptoms. (Die bei Erkrankung des Hinter haupt lappens beobachteten Erscheinungen mit speziellem Berücksichtigung der okularen Symptome.) *Zeitschrift f. Augenh.*, März and April, 1904.

Erdmann, Paul.—**A case of marginal chalazion.** (Ueber einen Fall von Chalazion Marginale.) *Arch. für Augenheilkunde*, Bd. LI, p. 171, 1904.

Erdmann relates the results of a careful microscopical examination of a case of marginal chalazion. The investigation seems to favour the view of Fuchs, namely, that the primary seat of the disease is in the Meibomian glands, and that the periacinar granulation tissue is secondary to intra-glandular irritation. He points out that occasionally masses of granulation tissue may develop away from the glands altogether.

LESLIE PATON.

Nicolini, T.—**A case of ivory exostosis of the orbit.** (Di un caso di osteoma eburneo dell'orbita.) *La Clinica Oculistica*, July, 1904.

Nicolini's case was met with in a boy, 12 years of age, who for two months had been afflicted with a growth in his right orbit. The tumour was found to be an ivory exostosis upon exploratory incision. Healing was rapid. There was a slight discharge of pus, and two small fragments of bone came out of the wound. The mass of the tumour disappeared in the course of a few weeks.

HAROLD GRIMSDALE.

Truc, H.—**A mouth mask for use during ophthalmic operations.** (Masque opératoire buccal en oculistique.) *Revue générale d'ophthalmologie*, 31 mars, 1905.

Truc, while not claiming that the ophthalmic surgeon must cover his mouth when operating, thinks that it is advisable to do so, especially if he requires to talk to bystanders. The chief danger is from droplets of saliva. Experiments by various authors and by Truc himself showed that a gauze screen in front of the mouth very decidedly diminished the number of microbes reaching a culture medium at a given distance. The mask used by Truc consists of a wire half-oval frame, passing from the upper lip to the chin, suspended from the ears after the fashion of an ordinary curl-side spectacle frame. A double layer of gauze covers the frame, and is situated 1 cm. from the mouth. The total weight is 8 grammes.

ERNEST THOMSON.

Cohn, Hermann.—**Upon eye hospital notes and a diagnosis register for ophthalmic surgeons.** (Ueber Augenheilanstaltsberichte und Diagnosenregister für Augenärzte.) *Woch. f. Ther. u. Hygiene des Auges*, 27 April u. 4 Mai, 1905.

Leenheer, C.A.—**An orbital tumour of 10 years' standing.** *Medicine*, May, 1905.

Fleet, Frank van.—To what extent are cycloplegics necessary in determining the refraction of the eye and in the prescribing of lenses? *Medical News*, 6th May, 1905.

Hilbert, R.—On violet vision. (*Das Violettsehen.*) *Centralbl. für Augenheilkunde*, Mai, 1905.

Hilbert adds to the five hitherto reported cases of xanthopsia (violet vision) a sixth, which occurred in a neurasthenic man of 50 years, after a severe attack of influenza. The onset of this very annoying disturbance occurred on the fourth day of the illness, and lasted about thirty-six hours, after which it gradually disappeared. The etiology of this condition is discussed, and the author holds that it is due to an intoxication or other disturbance of the central nervous system, and it is never of peripheral origin.

A. LEVY.

Fröhlich, Conrad.—On instillation of atropine in one eye in convergent squint. (*Ueber einseitige Atropinisation bei Strabismus convergens concomitans.*) *Klin. Monatsbl. f. Augenheilkunde*, Januar, 1906.

Fröhlich treated nine cases of convergent squint by ordering convex glasses and by dropping atropine into the fixing eye. A cure was effected in four cases; the disappearance of the strabismus, however, was not always accompanied by an improvement of the sight of the squinting eye. In the other cases the treatment failed; yet it involved some interesting changes which are worth recording. One only case remained quite uninfluenced. Temporary alternation of the squint was observed in the second case; while in a third, constant convergence of the good eye occurred as long as atropine was continued. The same reversal which, however, did not disappear on the discontinuation of atropine, took place in a fourth case, in which the child exhibited also the interesting phenomenon of false projection when the non-fixing eye was covered. These periods could be distinguished in the course of treatment of the fifth case. During the first, the squint became alternating, and the vision of the originally squinting eye improved considerably. In the second period, not only the squint, but also the sight of the two eyes became reversed. During the third period, on the discontinuation of atropine, the original condition of squint and visual acuity re-established itself.

C. MARKUS.

REVIEWS.

Ueber die Beziehungen des Sehorgans zum Jugendlichen Schwachsinn. Von DR. TH. GELPKЕ in Karlsruhe. Halle a. S.: Verlag von Carl Marhold. 1904. Mk. 0.80.
The relations of the Eye to juvenile imbecility. By DR. TH. GELPKЕ.

In this pamphlet Dr. Gelpke states that he has had the opportunity of studying the educational capabilities of 578 psychically defective children, and he commences by pointing out some of the chief causes of imperfect mental development, as epilepsy, cerebral disease, consanguineous marriages, drink, and other circumstances. He coincides with Kraft-Ebing, in thinking that obtuseness of intellect is associated with dulness of the organs of sense, or as it may be differently expressed, for the normal development of the intellect not only must the ganglion cells of the cortex of the brain be in a healthy state, but the sensory organs must also be in a condition to bring accurate information to them. In the weak-minded the ganglion cells of the cortex are never in a perfectly normal state, but must be regarded as defective and imperfectly affected by external conditions. It is of the greatest importance that the organs of perception should have any defect remedied, and hence the necessity of discovering the nature of the defect and supplying the means for its correction. Dr. Gelpke divides the weak-minded into three groups. (1) The feebly endowed, owing either to severe indisposition, or to their incapacity to take in certain branches of knowledge, or to their idleness. (2) The imbeciles who are capable only of undertaking some kind of manual or agricultural work, or who are quite useless, although they can talk, move about, and to some extent care for themselves; and, lastly (3) Idiots, who have no intellect. Tables are given showing the proportions of the three classes in the two named institutions. Other tables give the proportion of amblyopic, hyperopic, and myopic children in each of the classes, with the numbers of those who suffered from astigmatism, squint, and leucomata. It is shown that defects of vision are very commonly present in imbeciles, and Dr. Gelpke thinks the correction of these defects and the improvement of the vision might and would play an important part in their education, and should be systematically undertaken.

HENRY POWER.

Zur Kroenleinschen Operation. Von Dr. JOSEF HELBRON. Berlin: Verlag von S. Karger, 15, Karlstrasse. 1905.

In this pamphlet, Helbron brings up to date the published statistics of Krönlein's operation. Since the appearance of

Domela's work in 1900, much ground has been covered. The present work collects the publications which have issued during the five years, 1900 to 1904. The author gives due credit to the method of Knapp, as the first organised attempt to plan an operative procedure which would allow the removal of post-ocular growths, without necessarily removing the eye. Now there has been a great change, since the question is not so much whether the eye shall be saved, as how it may best be saved. In malignant cases Helbron thinks there is too much stress laid on the saving of the eye. Its retention may mask a recurrence and prevent timely interference; further, the eye is rarely of much value to the patient, since in most malignant cases (and, indeed, in the majority of simple ones also) the muscles are so far disturbed that there is constant diplopia after resection of the outer orbital wall. Without under-estimating the value of such an eye as an organ of reserve, it is easy to over-estimate to the patient its probable future value. When the eye is blind, there can be no question that its removal as a proceeding preliminary to the removal of a malignant growth is better than resection of the bones. The little pamphlet gives a good résumé of the recent literature on the subject, and the author's conclusions seem sound.

HAROLD GRIMSDALE.

Skiascopy. and its Practical Application to the Study of Refraction. By EDWARD JACKSON, A.M., M.D., Denver, Colorado, U.S.A. Fourth edition: revised and enlarged, with 28 illustrations. Large 8vo, pp. 120. The Herrick Book and Stationery Company, Denver, Colorado, U.S.A., 1905.

The proof of the usefulness of this well and favourably known work is shown by the fact that it has reached a fourth edition. Primarily written to bring about a more general adoption of the fundus-reflex test, the author has made it his purpose, through subsequent editions of the book, to popularise the method to a degree of perfection which had been previously considered as one of excessive refinement and detail. As to the consummation of this avowed purpose, careful examination of the volume makes it at once manifest that the author has accomplished the desired result. We heartily greet the work in its new and improved form, and sincerely hope that it may have a large and useful circulation.

C. A. O.

Notas de Terapéutica ocular. El Dispensario Oftalmológico del Hospital de la Santa Cruz de Barcelona. Por el Doctor FRANCISCO FERNANDEZ-VICTORIO Y COCINA, Médico del Cuerpo de Sanidad Militar. Barcelona, 1905.
In this compendious treatise Dr. Cociña describes and gives

illustrations of the ophthalmological department of the Santa Cruz Hospital at Barcelona, and details the work that is being carried out at that institution by Professor Barraquer, the head of the *clinique*. Certain of the work is known widely, since Dr. Barraquer described it at the XIVth International Congress of Medicine, held in Madrid in 1903. Many illustrations and coloured pictures accompany this little book. Its author deserves our congratulations if only because the publication of his book shows that very scientific and important work in ophthalmology is being carried out in Barcelona.

E. ALVARADO.

Quelques Considérations sur l'Influence Nocive de l'Automobilisme, et du Cyclisme sur la Vision et les Moyens d'y remédier. Par Dr. MIROVITCH, de Paris. Paris : Octave Doin, Place de l'Odéon, 8. 1905. Price 1 franc.

Dr. Mirovitch, of Paris, traces many diseases of the eye to the latter-day development of what he aptly calls *le sport de vitesse*—that is to say, the use of cycles and of motor cars. The crouching position often assumed by the cyclist, according to our author, is responsible for a whole host of troubles, including strabismus, errors in refraction, and increased intraocular tension. Wind and atmospheric pressure set up congestion of the eyes, reflex asthenopia, conjunctivitis, blepharitis, and denudation of the epithelium of the conjunctiva. The dust is the cause of blepharitis, conjunctivitis, and keratitis. The excessive speed is to blame for confusion as regards the chromatic sense of the eye, and for other things besides. For the purpose of avoiding these various ocular affections, Dr. Mirovitch has devised a particular kind of protective goggles, the chief points about which are that although they fit closely around the orbit, yet the free circulation of air is provided for by a system of tubes, while lateral vision—a necessity for cyclists and automobilists—is facilitated by giving a slight curve, in the transverse sense, to the glasses.

Ocular Therapeutics. By SYDNEY STEPHENSON. London : Baillière, Tindall, and Cox, 8, Henrietta Street, Covent Garden. 1905. Price 2s.

This brochure of forty pages, reprinted from the *Medical Press and Circular*, contains certain lectures on ocular therapeutics delivered by Mr. Stephenson in June, 1905, at the Polyclinic, London, W.C. The amount of material is really surprising. There is scarcely a new remedy or method of application upon which Mr. Stephenson is silent. The author is an advocate of subconjunctival medication. He expresses

himself strongly with regard to the utility of argyrol in most of the superficial inflammatory affections of the eye. He has used eumydriene, the new mydriatic, as a solution containing two grains to the ounce of distilled water, and has satisfied himself that it is a speedy, painless, and efficient agent for dilating the pupil and paralysing the accommodation. The action on accommodation passes off in the course of two or three days, and may be neutralised in about thirty minutes, if necessary, by means of weak physostigmine (0·5 per cent.), points in which the new agent differs from atropine. The author has also found eumydriene to be tolerated in several cases where atropine caused local disturbance. Mr. Stephenson's experiences with a 2 per cent. solution of eucaine lactate, recommended in eye work by Langaard (*Therapeutische Monatshefte*, August, 1904), have convinced him that the agent is an anaesthetic, pure and simple. Stovaine, also, is another trustworthy local anaesthetic. Dionine is recommended by Mr. Stephenson as a symptomatic, rather than as a curative, agent. Jequiritol has been employed in a dozen cases of corneal opacities, but the results, although of some slight scientific interest, were scarcely such as to encourage the author in making further experiments with Roemer's product. X-rays, radium, organotherapy, and serumtherapy, are discussed, and the pamphlet concludes with some interesting remarks upon general constitutional remedies, especially as applied to diseases of syphilitic or rheumatic origin.

Die Augenheilkunde des praktischen Arztes. Von DR. FRITZ SALZER, Privatdozent an der Universität München. München : Verlag von J. F. Lehmann. 1905.

This reprint of an article contributed by the author to the *Münchener medizinischer Wochenschrift*, No. 16, 1905, points out the importance of a knowledge of ophthalmic affections to the surgeon or physician, and to the patient, since from 35% to 40% of all cases of blindness are more or less preventable. He enumerates the various diseases which may be regarded as preventable, as well as the means at the disposal of the professional man to enable him to recognise them. He singles out ophthalmia neonatorum, corneal disease, glioma retinæ, scrofulous and eczematous diseases of the eye, iritis and sympathetic ophthalmia, with a brief—very brief—sketch of the appropriate treatment in each case.

HENRY POWER.

CORRIGENDUM.

The Cartella eye shield employed by Sir Anderson Critchett after cataract extraction (*see THE OPHTHALMOSCOPE*, March, 1906, p. 113), is the invention of Mr. D. C. Lloyd Owen, and not of Mr. Priestley Smith, as inadvertently stated in Sir Anderson's communication.—EDITORS.

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Vide The Ophthalmoscope, March, 1906.

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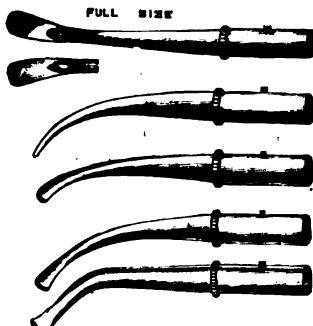
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**THE
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A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

VOL. IV.—NO. 51.

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A LECTURE ON THE ART OF EXTRACTING FOR CATARACT.

BY

C. BELL TAYLOR, M.D.

SURGEON TO THE NOTTINGHAM AND MIDLAND EYE INFIRMARY- NOTTINGHAM

When Professor Waldau, the late von Graefe's assistant, proposed to excise a small piece of iris and then to scoop out cataracts with a spoon, he did so because, although at that time suppuration was by no means rare after cataract extraction, it was almost never observed as a result of simple iridectomy.

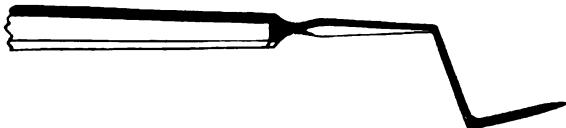
It occurred to me that a slight enlargement of Waldau's incision would enable us to dispense with the spoon, and, later on, that a further enlargement would enable us to dispense, not only

with the spoon, but also with the iridectomy. Waldau made his incision with a broad trowel-shaped keratome entered at the summit of the cornea precisely in the corneo-sclerotic junction. I have attained the same end with greater facility and absolute precision by substituting one or other of the knives which are here depicted in actual size.

No. 1 for the RIGHT EYE.



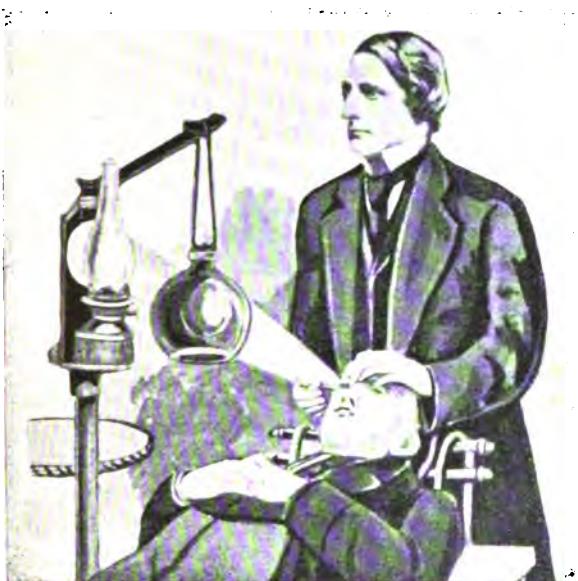
No. 2 for the LEFT EYE.



In performing this operation it is necessary to separate the lids with a light speculum, easily displaced, to steady the eyeball with Critchett's forceps, and to enter the knife—which should be in first-class condition both as to point and edge—in the cornea, close to the sclerotic junction, at the base of a flap, which, when completed, will comprise nearly, if not quite, one-half of the cornea. The knife is then pushed quickly across the anterior chamber until it emerges at a counter-puncture similarly placed, sawed rapidly upwards so as to get in front of the iris, which might otherwise fold over the edge of the blade, and then turned forward so as to complete the section precisely and deliberately in the upper border of the corneo-sclerotic junction. In this way a flap is formed which fits like a watch glass, which is at once agglutinated to adjacent tissues, and which ultimately leaves no trace.

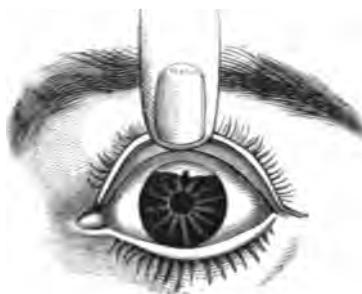
I prefer to lacerate the capsule widely, but only in its periphery, as suggested by Knapp, and always do this part of the operation with a very light hand, lest the lens be displaced or cortex separated or a portion chipped off. If now slight pressure be made at the lower border of the cornea, or if the patient be directed to look down, the wound will gape and the lens will present at the pupil, which it slowly dilates and then emerges with an unbroken surface, the flap falls into its place, and if all has gone well there will be no cortex to squeeze out and no prolapse of iris or other trouble to vex the soul of the operator or disturb the serenity of the patient.

When operating I stand behind the patient, who is reclined, and I almost invariably use artificial light. The hot air emanating from



the chimney of the lamp is an excellent steriliser, and the knives, curettes, and forceps may be dipped for a moment in absolute alcohol, while the patient's face, especially the eyelids and roots of the lashes, are sponged with the same fluid. Cocaine and holocaine usually suffice for anaesthesia ; but if the patient proves very indocile, as now and then happens, ether nebulised by nitrous oxide may be given, or ether alone may be administered by the thermogen inhaler or a modification of the open cone which I generally use. The patient should be got quickly under by the exclusion of air and the operation commenced at once during the first period of ether anaesthesia ; in which case, according to my experience, there will seldom or never be sickness or subsequent trouble of any kind. Of course, this is simple extraction, but it is simple extraction which can only be done in one way and with the instruments I have described, especially knife No. 2, by which the operator's right hand may be used for the patient's left eye. Of course, also, when all is completed in the happiest fashion, the patient may squeeze out the iris between the edges of the wound ; this, however, seldom happens, and when it does happen is usually capable of self-cure. I used to prevent it by excising a small piece of the sphincter of the iris, either as a

preliminary or as a part of the operation. I have even succeeded in preventing prolapse without sacrificing the pupil by limiting the iridectomy to the periphery of the iris.



Years ago I performed this operation in the presence of the late Sir William Bowman and other ophthalmic surgeons on a patient of Dr. Bader at Guy's Hospital, and I see that it has lately been adopted by H. Beckless Chandler in three hundred and twelve cases, only four of which prolapsed, two of these being the result of direct violence. I fancy secondary cataract is rather more frequent when the periphery of the capsule only is incised, as in Knapp's method, and no doubt it would be well if we could get rid of secondary cataract by removing both lens and capsule at the same time, but we cannot remove capsule that has no cohesion, and attempts in ordinary cases to do this involve profound and consequently dangerous anaesthesia, a large iridectomy downwards, a formidable spoon, and a general break-up of tissue, which, in my opinion, is much to be deprecated.

It was very kind of Sir Anderson Critchett to remember us all in his charming reminiscences.* He reminds me of his illustrious father, whose loss we cannot sufficiently deplore.

" 'Tis sad to think our acting, good or bad,
Is but for once; alas! there's no encore.
We strut our little hour upon life's stage,
We leave it, and, alas! are seen no more."

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

NOTES ON CATARACT EXTRACTION.

BY
ERNEST E. MADDOX, M.D., F.R.C.S.ED.,
OPHTHALMIC SURGEON ROYAL VICTORIA HOSPITAL, BOURNEMOUTH.

I have but little with regard to cataract to add to the papers so

* See THE OPHTHALMOSCOPE, March, 1906.

recently contributed to these pages*, feeling much indebted to others for the valuable *technique* which is now so common to all. Not pretending to be a veteran, I shall confine myself to a few minor points.

(1) In cases predisposed to iritis, or to gouty iridocyclitis, I attach great value to the instillation of atropine at the close of the extraction, a suggestion which I owe to George Mackay, who mentions that there is no fear of encleisis.

(2) As regards suturing the conjunctiva, for which I have had especially small needles made, I still think this a valuable practice in certain cases, as, for example, where the patient is subject to coughing or sneezing, or is unruly. I find, as anticipated, that others have practised it occasionally before.

(3) Whenever the conjunctiva is not thoroughly healthy, or the lacrymal passages not beyond suspicion, I never omit to lay about a saltspoonful of finely powdered boric acid over the inner canthus before placing any dressing on the eye. It enables guttapercha tissue to be more safely used over moist lint, since the liquids beneath it are kept soaked with this gentle antiseptic, the tears forming a saturated solution almost as quickly as they are secreted. There is no doubt that without this expedient, continuous moist warmth favours the multiplication of micro-organisms in the conjunctival sac. Yet on the other hand, a dry dressing possesses the serious disadvantage of allowing the tears to become pent up, causing pain and unrest until their imprisonment is terminated by a gush, which is not altogether advantageous to the healing process.

Professor Haab's practice of sealing up the puncta with iodoform in cases of regurgitation from the sac, owes its virtue to the insolubility of the medicament, instead of to its solubility, as in my plan. It would doubtless be sometimes advantageous first to occlude the canaliculi by Professor Haab's iodoform, and then to place boric powder over it, to catch and to saturate the newly-formed tears before they soak into the dressing from closure of their natural channel of escape.

(4) As regards choice of operation I prefer either simple extraction, or else a preliminary iridectomy, avoiding the combined operation whenever convenience permits. A tongue-shaped conjunctival flap attached to not more than the middle third of the corneal flap appears to be the best, since a larger one interferes with drainage and is apt to become distended with aqueous. The ideal operation of extraction in the capsule I have not done in the living subject. It is not yet sufficiently safe to be practicable in these countries, no perfectly satisfactory procedure having yet been invented. Those that are best known depend too exclusively on "vis a tergo," or else involve the introduction of

*See THE OPHTHALMOSCOPE, March, 1906.

an instrument into the vitreous chamber. I believe "vis a tergo" should be depended on until the lens is extruded half out, and then some kind of "vis a fronte" should take its place. Here is the missing link, for no good "vis a fronte" appears to be known. To transfix the nucleus with a dissection needle occurs to me, but is not good enough, and I have not experimented with an aspirating sucker. Of this I am clear, however, that the use of conjunctival sutures would be of great value after escape of vitreous, since they bring the conjunctival flap into closer apposition and greatly lessen that hindrance to healing which the presence of a foreign substance, like the vitreous, between the healing surfaces, occasions, besides, of course, guarding against further escape.

A CASE OF GUMMA OF THE IRIS AND CILIARY BODY.

BY

STANLEY SMITH, M.D., PITTSBURG, PA., U.S.A.

(CLINICAL SERVICE OF DR. CHARLES A. OLIVER AT WILLS' HOSPITAL,
PHILADELPHIA, PA., U.S.A.)

In October of 1904, while the writer was acting as one of the assistants in the clinic of Dr. Oliver, at Wills' Hospital, Philadelphia, a twenty-two year old unmarried negro came upon account of pain in the left eye, which had existed for three days. The patient had been wearing a pair of weak spherical lenses for the previous three years. He admitted specific infection in July of 1904 (some three months before), but gave a vague history in regard to secondary manifestations.

Examination showed that the cornea of the left eye was hazy. There were both ciliary injection and ciliary tenderness. The scleral vessels were somewhat injected. The iris was dirty-grey in tint and reacted sluggishly to light stimuli, accommodation, and convergence. Owing to the corneal haze, it was impossible to note the details of the fundus. Vision with the affected eye equalled one-eighth of normal.

The right eye was healthy in every respect.

A diagnosis of syphilitic iritis was made, and the patient was ordered instillations of atropine and boric acid. Dark glasses were employed, and inunctions of mercurial ointment (one drachm twice daily) were given. The case speedily improved. Pain, lacrymation, and photophobia lessened, and vision arose to normal at the end of a week's time. At the end of the second week a gummy mass was apparent. One week later, a profuse infiltration of the media appeared in the same eye, causing vision to be lowered to one-hundredth of normal. This Dr.

Oliver attributed to round-cell infiltrates, and considered as a good prognostic sign. The gummatous mass became more noticeable, giving rise to a protrusion of the sclera in the upper nasal quadrant about three millimetres' distance from the corneal limbus. By focal illumination the gumma could be seen jutting from behind the iris. The mass, with the exception of one small nodule of a yellowish-red colour, was dirty-grey in hue. Vision was reduced to light perception. The scleral protrusion became darkly pigmented and reached the size of a small pea.

After the fifth week the case began to improve; the scleral prominence became flatter and the gumma grew smaller. Intraocular tension, which had been considerably reduced, began to rise. The eye became quiet, pain practically disappeared, and ocular functions were again restored.

At this time the patient left the clinic and was lost sight of.

Remarks.—The chief features of interest in the case are the probable absence of secondary manifestations of syphilis; the improvement during the first weeks of treatment of the eye affection; the appearance of the gummatous mass; the secondary temporary loss of vision; and the ultimate good result.

EPITHELIAL PLAQUE OF CORNEA.

BY

R. W. DOVNE,
M.A., F.R.C.S.,

AND S. STEPHENSON,
M.B., F.R.C.S.E.

Domenico V—, 27 years, seen for the first time on May 1st, 1905. The patient's eyes have been bad ever since he remembers.

Present state.—The patient, who has little control over his eyes, is extremely difficult to examine, more especially as he speaks no English.

R.E.—The lower nasal quadrant of the cornea is hazy and vascular, and several small, superficial ulcerations occupy its medial part. T.n. V.=fingers at 4 metres, and No. 16 J., letters. L.E.—Eye tends to become convergent during examination. An adherent leucoma covers all, except a bit of the upper part, of the pupil, through which an anterior polar cataract can be recognised. The corneal cicatrix is covered with a *plaque* of oval shape, with its long axis horizontal. This area of xerosis forms a whitish, dry-looking, glistening patch, measuring 5 mm. by 4 mm., covered, as it were, with tiny bubbles of dried foam, probably representing Meibomian secretion. Upon manipulation, bits of foam-like substance can be detached from the surface of the *plaque*. T.n. No redness of eyeball. V. = fingers at 6 metres and No. 14 J., letters.

The lower palpebral conjunctiva, especially of the right eye, is thickened, and shows lines of cicatricial tissue, like those which are apt to follow severe cases of ophthalmia neonatorum (see Stephenson, *Trans. Ophthalmological Society*, Vol. XII, 1892, p. 54). The upper lid of the left eye is papillary, but not trachomatous, while that of the other eye is merely reddened. The surface of both eyes (conjunctiva and cornea) is curiously insensitive.

Remarks.—Although, owing to the difficulty alluded to above, no clear history can be obtained, there appears to be little doubt that the patient suffered when a baby from ophthalmia. The curious patch on the left cornea is, without doubt, an example of an "epithelial plaque" (Hocquard¹), or "secondary xerosis" (Leber²). This condition, which is found only in blind or semi-blind eyes, is rare. It was first described under the name *plaques écaillées cornées*, by Desmarres³ in 1855, and a few years later by Warlomont⁴, who reported a bilateral case in a peasant of 52 years.

In 1881 E. Hocquard gave particulars of two such cases, and bestowed the name upon the condition (*Plaques épithéliales de la cornée*) which we have adopted on this occasion. Shortly after the appearance of Hocquard's communication Leber described several cases of the kind as instances of what he called "secondary xerosis." Lastly, the condition was mentioned by one of us⁵ a few years ago in a communication upon "Epithelial Xerosis."

REFERENCES.

1. Stephenson.—*Trans. Ophthalmological Society*, Vol. XVIII, 1896.
2. Hocquard.—*Arch. d'ophthal.*, I, 1881, p. 481.
3. Leber.—*v. Grefé's Archiv f. Ophthalmologie*, 1883, p. 225.
4. Desmarres.—*Traité des maladies des Yeux*, second edition, 1855, Tome II, p. 371.
5. Warlomont.—*Presse médicale belge*, 25th December, 1860, and *Annales d'oculistique*, 31st December, 1860.

A MINUTE CEREBRAL LESION.

BY

A. S. PERCIVAL, M.B. Cantab.

SENIOR SURGEON TO THE EYE INFIRMARY, NEWCASTLE-UPON-TYNE.

Ten days ago J. D. came under my care at the Eye Infirmary. The right eye remained fixed in the middle line when his attention was directed to an object situated on his left side, so that at first sight he appeared to have a paralysis of the nerve branch supplying the right internal rectus. However, this was at once negatived by finding that he could converge perfectly. Slight ptosis of the left eyelid was also present; the pupil was moderately dilated and sluggish in its action. When his atten-

tion was directed to the left, his left eye showed occasional nystagmic movements. He complained of having seen double when looking towards the left for the previous fortnight. There was no history or evidence of syphilis. Now on considering the course of the nerve fibres innervated on ranging the eyes to the left, I think one can localise the lesion with extreme accuracy. From the cortical centre in the right hemisphere the efferent fibres reach the left sixth nucleus, and from there the efferent impulse reaches the anterior part of the right third nerve nucleus by means of the decussating longitudinal bundle of the pons. Clearly the lesion must have been situated just at the junction of these fibres with the third nucleus, slightly implicating that part of it which gives rise to the fibres that innervate the right levator palpebræ, which is known to be in the anterior part, while just in front of this is the nuclear centre which contracts the pupil. The nystagmus in the left eye still remains to be explained. It was found to cease as soon as the right eye was covered. This at once suggests that it was not a true nystagmus, but a compensatory movement of the right eye brought about by the endeavour to correct the diplopia which occurred when the attempt was made to range the eyes to the left.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—BACTERIOLOGY.

- (1) Martin, A.—A bacterial colony in the eye. (Ueber einen Bacterien Rasen am Auge.) *Archiv für Augenheilkunde*, Bd. LI, 1904, p. 141.
- (2) Bietti, A. (Padova)—On the pathogenic properties of the bacillus of Deyl in chalazion. (Sul valore patogeno del bacillo del Calazio di Deyl.) *Archivio di Ottalmologia*, Maggio e Giugno, 1905.
- (3) Luerssen, A.—The relation of bacillus of Müller to the causation of trachoma. (Die Beziehungen des Bazillus Müller zur Genese des Trachoma.) *Zeitschr. f. Augenh.*, Nov., 1905.
- (4) Duclos.—Bacteriological researches on post-operative infections. (Recherches bactériologiques sur les infections post-opératoires.) *Ann. d'oculistique*, T. CXXXIV, p. 409, décembre, 1905.

(1) The patient in Martin's case got a scale from a bird-seed into his eye. On this the bacillus *xerosis* started to grow luxuriantly until it formed a definite colony of some size, situated on the limbus of the cornea, and encroaching some distance on to the corneal surface. Examination of this mass showed that it consisted almost entirely of the *xerosis* bacillus growing round the awn of grass-seed.

LESLIE PATON.

(2) The experiments made by *Bietti*, both at the Eye Clinique in Freiburg and at Padova, tend to demonstrate that it is not yet proved that the bacillus of Deyl, recently also studied by *Hàla*, is the actual cause of chalazion. Deyl and *Hàla* deny that chalazion is a form of retention-cyst, caused by the occlusion of the excretory ducts of the Meibomian glands, and maintain it to be the result of a microbial infection. Thus, the so-called bacilli of *xerosis*, which are found in the conjunctival sac and in several pathological conditions by the rubbing of the eyelids with the hands (during conjunctival catarrh or even asthenopia) penetrate the tissue of the palpebral conjunctiva, and multiplying in it produce an acute inflammation, which is followed by the formation of a small chronic granulation—tissue tumour. Deyl and *Hàla* tried to strengthen their theory further by experimentally producing chalazion in animals, inoculating the bacilli of *xerosis*, both alive and dead. *Bietti*, however, by repeating the same experiments, and others with different bacilli, came to the following conclusions: (1) that it is not demonstrated that the bacillus of Deyl, *viz.*, the so-called bacillus of *xerosis*, is the cause of and the only agent in producing chalazion, since it is not found in all cases, not even when they are recent ones; (2) that it is not yet sufficiently proved that this bacillus is the cause of chalazion, because it is met with normally in the secretion of the Meibomian glands, where it multiplies if the glands be irritated. Its action cannot, however, be excluded in those cases in which it is present: (3) that if this bacillus is the cause of chalazion, it is not because of its containing the toxin of diphtheria, as it is quite possible to produce experimentally chalazion in animals immune from the same disease; (4) that the so-called experimental chalazion is not exclusively characteristic of the bacillus of *xerosis*, as it can also be produced by the inoculation of other saprophytic bacteria; (5) that further researches are necessary before it can be considered as established that the bacillus of Deyl is endowed with pathogenic importance as the cause of chalazion. CHARLES MANCHÉ.

(3) *Luerssen* has investigated the relationship between the bacillus of Müller and trachoma, both by the examination of a large number of trachomatous conjunctivæ, and by inoculation experiments upon himself and other people. The conclusion he

arrives at is that while the bacillus is found in some cases of trachoma, the evidence is entirely against it being the cause of the disease.

A. LEVY.

(4) **Duclos** has made a bacteriological investigation of nine cases of ocular infection following cataract operations, from which he draws the following conclusions.—(1) The agents of post-operative infection are usually the pneumococcus (seven times) and the streptococcus (twice). (2) The infection is of exogenous origin, and always starts from the edges of the incision. (3) Clinically, suppuration due to the pneumococcus is characterised by a whitish exudation spreading towards the vitreous, while that caused by the streptococcus gives rise to an abundant conjunctival secretion and causes a diffuse infiltration of the cornea. (4) In the cases in which the urine was examined it was found to contain neither albumin nor sugar. Several of the patients were affected with chronic irritation of the conjunctiva or lids; almost all had lacrymation. The infections often occurred during the course of a coryza, and the most severe of them coincided with a relapse of a cold. The mucous membrane of the nose and throat contained the same micro-organisms as the pus from the operation wound. (5) Operative security depends partly on asepsis of the instruments, hands, dressings, etc., and partly on the condition of the mucous membranes.

R. J. COULTER.

II.—CONGENITAL LACRYMAL FISTULA.

- (1) **De Ridder.**—True congenital lacrymal fistula. (*Fistule lacrymale congénitale vraie.*) *Bull. de la Société belge d'ophtal.*, No. 17, 1905, p. 10.
- (2) **Caillaud.**—Congenital fistula of the lacrymal sac. (*Fistule congénitale du sac lacrymal.*) *Archives d'ophtalmologie*, mars, 1906.
- (3) **Elschnig, A.**—Congenital fistula of the lacrymal sac. (*Angeborene Tränensackfistel.*) *Klin. Monatsbl. f. Augenheilkunde*, Januar, 1906.

(1) A female consulted **De Ridder** on account of slight epiphora dating from several weeks, and not associated with stricture of the nasal duct or antecedent blennorrhœa. Fluid injected through the puncta of the affected eye passed normally into the nose, but at the same time several drops of the liquid made their appearance below the tendo oculi in front of the lacrymal sac. Upon examining this region attentively, a slight cutaneous fold

was seen, directed downwards and inwards towards the ala nasi. It was surrounded by fine hairs, similar in colour to the patient's eyelashes. The fold of skin concealed a small funnel-shaped orifice, the upper part of which was provided with a tiny fold of skin. A communication existed between this hole and the lacrymal sac. De Ridder suggests that the condition had resulted, not from a congenital suppuration of the lacrymal sac with the subsequent formation of a fistula, but from an arrest of development of the embryonal lacrymo-nasal furrow. S. S.

(2) After mentioning the cases of congenital lacrymal fistula reported by Spangenberg, Scarpa, Bérard (1841), Caron du Villards, Terson (1873), Agnew (1874), Hardesty (1878), Rider (1884), Schraberg (1885), Hartridge (1892), and Wood (1894), **Caillaud** reports a case in a cretinoid girl, aged 11 years, many of whose brothers and sisters had died in infancy. A considerable discharge of pus from the eyes alternated with periods of lacrymation. The patient presented a tiny fistula (not admitting the point of Bowman's No. 1 probe), lying some 3 mm. below and to the inner side of each internal canthus. A probe could be passed on the left side but not on the right, and methylene blue dropped into the conjunctival sac appeared in the left nostril but not in the right. The accessory lacrymal gland was therefore ablated on the right side, with relief to the lacrymation. Caillaud suggests that the lesion he describes may be the result of an intra-uterine dacryocystitis. S. S.

(3) **Elschnig** has recently met with three cases of congenital fistula of the lacrymal sac. Details follow:—1. Male, aged 5 years, about 3mm. below the inner canthus of the left eye, lay a button-like cutaneous papilla, in which was a small, crateriform fistula. Fluid injected through the fistula escaped by the nose, as did fluid injected through the punctum lacrymale. 2. Male, 21 years, showed a condition similar to the above below the right eye. Fluid injected through the fistula escaped by the nose. Tear passages permeable. 3. Female, aged 33 years, showed below each internal canthus a papilla with a crateriform fistula situated upon it. The opening was surrounded by pale hairs, resembling cilia. Pressure test negative. Fluid injected through the fistulæ escaped by the nose. Since an attack of facial erysipelas about a year before Elschnig saw the case, the patient had suffered from a relapsing inflammation of the wall of the fistula itself. Under local anaesthesia, the fistulæ and the surrounding tissues were excised. Specimens, examined microscopically, are described and figured. In discussing briefly the twenty cases already described of this form of congenital fistula, Elschnig points out that in about one-half the number the fistula has been unilateral,

and that in most instances the lacrymal passages have been permeable and the canaliculi present. He concludes his communication with some remarks upon the etiology of the condition.
S. S.

III.—“SCROFULA” AND PHLYCTENULAR DISEASE.

Straub, W.—*Scrofulosis and dormant tuberculosis. (Scrofulose en sluimerende Tuberculose.) Geneeskundige Bladen, 12e reeks, No. 1, 1905.*

At the beginning of the bacteriological era certain investigators came to the conclusion that staphylococci were the cause of phlyctenular conjunctivitis. Some others, amongst them Axenfeld, strongly opposed this view. These latter thought that the chief point in this affection was the peculiar “scrofulous” diathesis. The conjunctiva of scrofulous individuals does not behave like a normal one, when exposed to infections. In Axenfeld’s opinion, phlyctenular conjunctivitis represents the specific reaction of the conjunctiva of “scrofulous” individuals to all kinds of infection, and there is no need to accept only *one* cause for it.

To a certain point, Straub accepts Axenfeld’s views. He thinks, in consonance with the latter, that two things should be considered necessary to cause a phlyctenular conjunctivitis, *viz.*, an endogenous and an exogenous factor. Several considerations lead one to accept the last-named factor. First, the eruptions are mostly superficial; secondly, they are situated at the limbus, a place showing alterations in almost every case of conjunctivitis, from which we may conclude that it is an excellent point of attack for exogenous infection. The reason of this probably is that obnoxious matter in the depression surrounding the cornea escapes the salutary influence of lacrymation and nictitation. A third argument in favour of the exogenous factor is the often rapid success of external treatment.

As to the nature of this exogenous factor, Straub differs from Axenfeld, for he thinks that staphylococci play an important rôle, and that there are no reasons to think *any* infection whatever can cause a phlyctenular conjunctivitis. Under Straub’s supervision, many researches have been made to ascertain the part played by the staphylococci.

Meijers found that in the conjunctiva, the mouth, and the nose, but still more in facial eczema (which is considered by Straub to be the analogue of scrofulous conjunctivitis), staphylococci are to be constantly found.

v. Haaften compared the flora of scrofulous conjunctivæ with that of healthy eyes, and found staphylococci to be more frequent

in the first. He also compared the bacteria of scrofulous eyes with those present in eyes which were inflamed from some other cause, and found staphylococci more regularly and in greater numbers in the former. He accordingly feels justified in ascribing a certain importance to these bacteria in the etiology of phlyctenular conjunctivitis.

Experience tells us that, apart from this external cause, there must be an internal one, a "predisposition." This latter is supposed by Straub to be a pre-existing infection of the body with tubercle bacilli. In some cases under his care which showed themselves most rebellious against all treatment, there appeared after some time a tuberculous affection of some other part of the system. In many cases such a tuberculous affection is easily found. How many of our patients with phlyctenular conjunctivitis are there who do not show lymphomata, fistulæ, or caries! In other cases, however, careful examination fails to reveal a tuberculous affection. Yet Straub has a strong suspicion that in these cases such an affection is present, and from statistics has learned where to look for it. Nägeli has shown how enormously frequent tuberculosis of the bronchial glands is, and others have confirmed the observation that in scrofulous children this is generally present. Specialists for children's diseases frequently have to treat "scrofulusis" as a general disease more often than the eye-surgeon, and the first-named, therefore, are more familiar with the diagnosis, "tuberculosis of the bronchial glands."

An argument in favour of Straub's view that pyogenic cocci can cause a peculiar affection in cases where tuberculosis in some form is present, is given by experiments made by v. Haaften in Straub's laboratory. The corneæ of rabbits, previously infected with tuberculosis, were inoculated with staphylococci, and at the same time some healthy animals were inoculated in the same way. The infection in the first series ran a much graver course.*

G. F. ROCHAT.

IV.—GUMMATA OF THE EYELIDS.

Narich, I. — Gummata of the eyelids. (*Des gommes syphilitiques des paupières.*) *Revue de la Suisse Romande*, 26 novembre, 1905.

Gumma of the eyelids occurs rarely in ophthalmic practice, but was noted in 1738 by Astruc and later also by Lawrence in

*For abstract of Van Haaften's communication, see THE OPHTHALMOSCOPE, Vol. 1 (1903), p. 91.—EDITORS.

1831, Jean Campbell in 1832, Desmours in 1847, d'Estlander in 1870, Magawly in 1873, de Zeissl, and in 1889 by de Lapersonne (*Bulletin Médical du Nord*). Zeissl found four cases of this tertiary lesion in 40,000 cases of syphilis. It occurs in the acquired form, and has been observed in babies contaminated by nurses. It is seen with equal frequency in either sex, and chiefly on the upper lid towards the internal angle of the eye. It generally shews itself ten to twenty years after the primary sore, but may appear even as soon as the ninth or twelfth month of the disease. Repeated traumatism is suggested to account for its localisation. Two forms are recognised, *viz.*, circumscribed and diffuse, the latter being characterised by small nodosities. The process generally begins in the tissues between the skin and the tarsus, but may also start in the skin itself. The tumour feels firm, smooth, and tense, and the skin over it often desquamates. Its course is similar to that of gummata in general, consisting of four stages, *viz.*, (1) tumour, which varies from the size of a small pea to that of a pigeon's egg (de Wecker and Landolt), is generally painless, but may be intensely painful, and may remain a long time stationary; (2) softening; (3 and 4) characteristic ulceration and cicatrisation. A circumscribed gumma may sometimes increase in extent, forming a plaque, without involving surrounding tissues.

Syphilitic tarsitis occurs as a circumscribed or diffuse inflammation. In its latter form it has been described by Vogel, Magawly, and Fuchs. Bulbar lesions, *e.g.*, iritis, retinitis, and irido-choroiditis, are frequent complications. Residua are lid paresis and slight lagophthalmos. Blary has noted sclerosis of the extrinsic eye muscles, following upon gummata which have developed in them. Diagnosis of a gummata from epithelioma is made by its relatively rapid progress, the generally younger age of the patient, the absence of old-standing chronic irritation as a predisposing factor, of pain and of cachexia, and sometimes by the specific history.

Chancre is rare on the eyelids (Ricord). The precocious enlargement of the preauricular and sub-maxillary glands is a valuable diagnostic aid. Styes are readily distinguished by their peculiar characteristics. Chalazion often follows chronic blepharitis or styes, and there is no indurated base or ulceration.

The prognosis is extremely good if treatment be begun early, but apart from this, total destruction of the eyelid may occur. Cure may be spontaneous. Treatment as for tertiary lesions in general. Mercury is advantageous.

ROSA FORD.

V.—ECLIPSE BLINDNESS.

Ferentinos, Sp.—Disturbances of vision caused by observing a solar eclipse. *Ophth. Klinik*, Januar, 1906.

Ferentinos gives an interesting description of the appearances of the fundus he had observed in five patients who had been watching last year's solar eclipse. He refers incidentally to points in differential diagnosis, and concludes with notes on the functional disturbances connected with the cases.

The fundus, as seen by indirect examination, showed at first a grey spot at the macula surrounded by a dull-red ring, and outside this a faint cloudiness of the retina. Three or four weeks afterwards nothing remained but a slight hyperæmia of the macular region. Direct examination then revealed a bright-red ring round the hyperæmic area, and also a faint redness of the retina just outside the ring. Subsequently, the fundus regained its normal appearance. As regards the functional affections, the chief of these were a diminished visual acuity, disturbances of colour vision, and retinal asthenopia. It may be noted in the first place that in two of the patients vision returned to $\frac{6}{6}$, after having been reduced to $\frac{6}{4}$ in both cases. There was a central defect for colours, including white. The retinal asthenopia, or, as Ferentinos would like to call it, "optical hypercoposis," was very marked, but disappeared entirely in the end. The treatment recommended is—*nil*, no darkened rooms, no strychnine injections. Sodium iodide was given as a *placebo*.

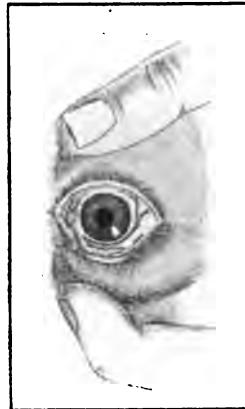
PERCIVAL J. HAY.

VI.—LYMPHANGIOMA.

Hirschberg, J.—On congenital lymphangioma of the eye-lids, the orbit, and the face. (*Ueber das angeborene Lymphangiom der Lider, der Orbita, und des Gesichtes.*) *Centralb. f. prak. Augenh.*, Januar, 1906.

After referring to the variety of observations of congenital lymphangioma in ophthalmic literature, **Hirschberg** reports two cases of his own, both of which have been watched by himself for many years. The first case, that of a female child, aged 2 years, when first seen, had a swelling of the right upper lid of about the size of a large walnut and a smaller swelling under the skin at the inner canthus. These tumours were present at birth, but had become larger. The smaller swelling extended backwards into the orbit and interfered with the

upward movement of the eyeball. Pressure on the main tumour caused it to become much smaller, and it swelled rapidly when the child cried. In addition, the ocular conjunctiva showed the



presence of several enormously enlarged and beaded lymph vessels. A series of operations for the cure of the main condition was undertaken, with, on the whole, a satisfactory result.

The second case was also in a young girl, 5 years of age when



first seen, but the condition was much more serious. The whole of the left side of the face was enlarged—broader and more massive than the right. The left eye was markedly prominent,

and on the ocular conjunctiva dilated beaded lymph vessels could be seen. The diagnosis was lymphangioma of the orbit and left side of the face. Virchow agreed with this diagnosis except he thought that some blood vessels might also be implicated.

A series of operations was again undertaken in order to cure as far as possible this condition, and although much troubled by haemorrhages which recurred time after time throughout the following years. The result, when the patient was about 20 years of age, could be considered moderately satisfactory. Drawings of the microscopical specimens are given which show a very well-marked lymphangiomatous condition.

A. LEVY.

VII.—“HOLES” IN THE MACULA.

Reis, W.—On the etiology of the formation of “holes” in the macula. (*Zur Ätiologie und Genese der Lochbildung in der Macula Lutea [Retinitis Atrophicans Centralis].*) *Zeitschr. f. Augenh.*, Januar, 1906.

Reis describes four cases of this curious condition of “holes” in the macula. One in the left eye of a young man, as the result of a blow. The second in a woman, *etat* 50 years, who came with a well-marked albuminuric retinitis in both eyes, with marked oedema of the retina and some haemorrhages. The patient's condition improved, and as the retinitis disappeared, well-marked “holes” in the macula region became evident, with a scotoma in the field to correspond. The third case occurred in a boy of 15 years, who was wounded in the right eye by an air pistol. The injury consisted in a severe contusion of the eyeball, but without perforation. There resulted a rupture of the choroid, oedema of the retina, and a haemorrhage in the vitreous. As these cleared up, a well-marked “hole” appeared in the region of the macula. The fourth case, in a woman of 58 years, was evidently of long standing. She gave a history of having received a severe blow on the eye, since when the vision had been bad. Reis, from a consideration of these cases and of those already recorded, is of opinion that although traumatism is the most frequent cause of this condition it is not the only one. He thinks that in all cases the essential cause is a severe oedema of the retina, which causes an atrophy of this, the thinnest and most vulnerable part of the retina. The most frequent cause of this oedema is traumatism, but other conditions, notably albuminuric retinitis, may bring it about.

A. LEVY.

VIII.—OPTIC NEURITIS AND ACUTE INFECTIONS.

Antonelli, A. *Optic neuritis in the course of acute infections.*
(*Les nevrites optiques au cours des infections aigües.*)
International Congress at Madrid, April, 1903.

Antonelli concludes an elaborate report upon optic neuritis in acute infections as under :—

1. Every acute infectious ailment and every recrudescence of a constitutional infectious malady may give rise to optic neuritis, papillary or retro-bulbar.

2. Influenzal neuritis (of which about sixty cases have so far been published) may assume several different clinical forms.

3. Specific optic neuritis, although rare during the acute stage of the affection, is relatively common during relapsing or congenital syphilis.

4. In typhoid fever optic neuritis is rare, and is generally of the retro-bulbar variety.

5. Aside from amaurosis, with ophthalmoscopic changes, literature contains some twenty observations of optic neuritis occurring in the course of measles. This has usually been a perineuritis, due to infection propagated directly from the nasal fossæ through the thin osseous walls of the ethmoid.

6. Scarlet fever is rarely the direct cause of a toxic optic neuritis.

7. Neuritis or neuro-retinitis after small-pox is rare, seven observations only having been published. It is a post-eruptive complication, and occurs independently of the gravity of the original disease.

8. Optic neuritis is amongst the commonest ocular manifestations of malaria.

9. Some ten cases have been published of optic neuritis following diphtheria. Like paralysis of the palate and muscles, it manifests itself during convalescence.

10. Three cases are known where optic neuritis followed non-diphtherial angina.

11. Optic neuritis consecutive to erysipelas is due to orbital cellulitis or to lymphangitis of the orbital tissues. It has been met with only after erysipelas of the head or face.

12. Eighteen cases have been published where optic neuritis followed mumps. The late appearance and the favourable prognosis of this form are to be noted.

13. In polyneuritis, optic neuritis is rare. One case of optic neuritis has been reported in beri-beri.

14. Optic neuritis in the course of herpes zoster ophthalmicus has been observed by Hutchinson, Jessop, Gould, and Antonelli.

15. Acute epidemic meningitis can cause neuro-retinitis.

16. Of the five cases of optic neuritis or atrophy after whooping-cough placed on record, two are open to doubt.

17. In acute rheumatism, optic neuritis has been noted by Koenigshofer and Macnamara. The so-called "rheumatic optic neuritis" (of which about twenty cases had been published up to the year 1900) is probably a toxic neuritis of acute form, due to disorders of nutrition and auto-intoxications (uraemia).

18. Purpura (1 case), recurrent fever (5 cases), typhus (3 cases), blennorrhoea (2 cases), and, more rarely still, dysentery, hydrophobia, cholera, measles, anthrax, and leprosy seem to have been the cause of optico-retinal affections.

19. According to Antonelli, *toxi-infectious optic neuritis* is more common than toxic neuritis, properly so-called.

20. The bilateral character of the lesions tells in favour of the toxic cause of the disease.

21. The optic nerve really represents an organ predisposed to the effects of poisons of all kinds. This predisposition is to be explained by the structure and connections of the nerve, which is at once a peripheral nerve and a direct extension from the brain; is encircled by an osseous ring favouring stasis and strangulation; and is vascularised in such a way as to allow of the diffusion of toxic substances.

22. Toxic substances may reach the optic nerve by two routes, namely, by the blood-vessels or by the lymphatic sheaths.

23. Although optic neuritis may result from the action of micro-organisms or of toxins or leucomaines, yet it is often primary.

24. It is most useful in cases of optic neuritis to examine carefully into the colour- and the light-sense.

25. Generally speaking, the prognosis of optic neuritis should be guarded.

26. With respect to treatment, Antonelli recommends injections of pilocarpine when there is compression by perineuritis. Causal treatment should be employed in neuritis due to syphilis, malaria, and rheumatism. Strychnine, which seems to have a selective action on the peripheral nervous system, must not be forgotten. Massive subcutaneous injections either of physiological serum or of Chéron's serum may be of service, and so may specific sera (antidiphtheritic, antistreptococcic, and antityphoid) in appropriate cases S. S.

IX.—AMAUROSIS IN TABES DORSALIS.

Galezowski, J.—The evolution of amaurosis in Tabes. (*L'évolution de l'amaurose dans le tabes.*) *Recueil d'ophtalmologie*, mai, 1905.

Galezowski gives the results of his investigations into the duration of the period which elapses between the first sign of impending loss of sight and the establishment of complete amaurosis in cases of tabes. He distinguishes between absolute amaurosis (no perception of strongest light), and complete, but not absolute, blindness (perception of hand-movement only).

He tabulates his results as follows:—

CASES OF ABSOLUTE AMAUROSIS.

8 days.	2 mos.	3 mos.	5 mos.	6 mos.	8 mos.	9 mos.	10 mos.	11 mos.
2	4	2	2	5	2	1	2	2
1 year.	14 mos.	15 mos.	18 mos.	2 yrs.	3 yrs.	4 yrs.	6 yrs.	9 yrs.
4	1	2	1	2	2	2	1	1

CASES OF COMPLETE, BUT NOT ABSOLUTE, BLINDNESS.

8 days.	Some mos.	3 mos.	4 mos.	7 mos.	8 mos.	11 mos.
1	4	2	1	2	2	1
1 year.	13 mos.	14 mos.	19 mos.	3 yrs.	5 yrs.	
5	1	1	1	1	1	

From these tables it will be seen that complete amaurosis takes very few months to develop. Thirty out of thirty-eight cases became completely blind in less than eighteen months, and fifteen lost all perception of light in less than six months.

In those cases in which the blindness is not absolute, the progress is somewhat slower, and conversely, where the progress is slow, the case is not so likely to go on to absolute amaurosis. Where the blindness becomes absolute in a few days it is possible that in some cases the earlier stages of failing vision escaped the notice of the patient, but in one of the author's cases the sight was undoubtedly completely lost in three days. In some cases, as reported by Léri, where the sight after being completely lost is partially re-established, the amaurosis is probably due to a superadded functional or toxic trouble.

It is rare for the two eyes to be affected at once, and there may be years between the onset of symptoms in the two eyes. Further, the progress of the disease may be quick in one eye and slow in the other.

J. JAMESON EVANS.

X.—TUBERCULOUS AFFECTIONS OF THE EYE.

- (1) Villard.—**Tuberculosis of the conjunctiva.** (*La tuberculose de la conjonctive.*) *Ann. d'oculistique*, T. CXXXIII, page 271, avril, 1905, et T. CXXXIV, page 87, août, 1905.
- (2) Gilbert, W.—**On the prognosis and treatment of conjunctival tuberculosis.** (*Zur Prognose und Therapie der Konjunktival-Tuberkulose.*) *Klin. Monatsbl. f. Augenheilkunde*, Juli, 1905.
- (3) Schultz-Zehden, P.—**On chronic tuberculous choroido-retinitis.** (*Die chronische herdförmige Chorio-Retinitis tuberculosa.*) *Zeitschr. f. Augenh.*, Sept.-Okt., 1905.
- (4) Moisonnier.—**Primary tuberculosis of the conjunctiva.** (*Tuberculose primitive de la conjonctive.*) *Ann. d'oculistique*, T. CXXXIV, p. 210, septembre, 1905.
- (5) Hirschberg, J.—**A case of tuberculous glaucoma.** (*Ein Fall von tuberkulösem Glaukom.*) *Centralb. f. prakt. Augenh.*, November, 1905.
- (6) Parsons, J. Herbert.—**Ocular tuberculosis in children.** *Lancet*, November 4th, 1905.
- (7) Rochon-Duvigneaud and Onfray, R.—**Bilateral chronic exophthalmos, caused by a tuberculous sclerosis of the intra-orbital muscles.** (*Double exophthalmie chronique déterminée par une sclérose tuberculeuse des muscles intra-orbitaires.*) *Archives d'ophtalmologie*, mars, 1906.

(1) Villard's article contains an exhaustive account of the facts which are known about conjunctival tuberculosis and a critical study of the views which are held on the subject, under the following headings :—1. *Etiology.*—The disease is rare, the recorded cases numbering about 150, 72% of which were in patients under 20 years of age; contrary to the received opinion, it is commoner in males than in females; it occurs in all countries, climates, and races; evidence of heredity is rare, and, as a rule, it has been recorded that the patients were free from tuberculous stigmata; traumatism can be practically excluded as

a cause, although there are some cases in which it seems probable that the infection was direct. 2. *Pathogeny*.—Experiments show that the disease can be produced only by penetration of tubercle bacilli into the substance of the mucous membrane, and it has been suggested that such infection might occur (*a*) endogenously (but in at least 60 % of the recorded cases the lesion was primary); (*b*) by extension from the nasal mucous membrane; (*c*) exogenously, either through a phlyctenular ulcer or through a scratch of the conjunctiva made by a small foreign body. 3. *Pathological anatomy*.—The microscopic appearances are those typical of tuberculosis. 4. *Symptoms*.—The symptoms are those of a conjunctivitis which shows no tendency to get well, spontaneously or under simple treatment, and which is accompanied by swelling of the lids and enlargement of the preauricular or submaxillary glands. The tuberculous lesions, as a rule, are nodules, usually round or oval, varying in size from that of a pin head to that of a millet seed; although in a few cases these nodules remain small and show no tendency to break down, as a rule they enlarge and undergo caseation, giving rise to irregular crateriform ulcers with indurated bases and edges, which tend to spread and not to heal. In rare cases several nodules may coalesce, so as to form small, yellowish, gelatinous tumours; or the lesions may take a fungating form, characterised by thickening and hypertrophy of the conjunctiva over the tarsi and *culs-de-sac* and even giving rise to excrescences resembling cockscombs. Corneal lesions occur very late and the lacrymal passages are rarely involved, but a nodule on the bulbar conjunctiva may spread deeply, involving the sclerotic. Generalisation of the disease may occur, but is not common. The following varieties of the disease have been described, but some at any rate of them represent only different stages of the same form:—(*a*) miliary, (*b*) ulcerative, (*c*) fungating, (*d*) polypous and papillomatous, and (*e*) lupous. 5. *Prognosis*.—Although spontaneous cure is possible, the disease is a grave one, and if left to itself, may cause loss of the eye or of the patient's life. Under treatment, however, cures have been obtained, even in very advanced cases, and so it is possible that the lesions are usually caused by an attenuated form of tuberculous infection. 6. *Diagnosis*.—Clinically, the disease can usually be easily recognised. Experimentally, the results obtained by microscopical or bacteriological examination of the secretions or tissues or by injections of tuberculin are unreliable, and inoculation experiments constitute the only means of diagnosing tuberculosis, either local or general, which is almost infallible. Villard strongly recommends the *technique* devised by Morax and Chaillous, which consists in inserting a piece of the suspected

tissue under the skin of the abdomen of a guinea pig. 7. *Treatment*.—Numerous local applications have been tried without any definite success, and medical treatment should be confined to general anti-tuberculous measures. Injections of tuberculin have in some cases done good, and should be tried where the disease is too extensive for surgical treatment. Surgically, *curettage* is usually insufficient, and excision to be satisfactory must be complete, while both these methods by opening vessels may give rise to general infection. Villard, therefore, recommends cauterisation, either alone or combined with *curettage* or incision.

R. J. COULTER.

(2) **Gilbert** gives a survey of 21 cases of conjunctival tuberculosis which came under observation in the *clinique* at Bonn during the last two decades. Salter's four clinical groups could be distinguished :—(1) The tubercular ulcer. (2) The nodular, trachoma-like form. (3) The cockscomb-like growth. (4) Lupus conjunctivæ, characterised by bleeding granulations, scarring, and implication of the adjoining skin. All cases were treated surgically, by excision and the galvano-cautery; but the results varied decidedly, according to the groups to which each case belonged. A permanent cure was effected in all three instances of tubercular ulcer. Not quite so favourable was the course in three cases of cockscomb-like granulation; of these only one was cured, and two improved considerably. The second and fourth group presented the worst outlook, for not one definite cure could be registered. It is in these prognostically unfavourable cases that a remedy is required to supplant, or, at least, to supplement, the surgical treatment; but Gilbert has had no experience with Röntgen rays, as employed by Stephenson, or with subcutaneous injections of tuberculin, as recommended by v. Hippel.

C. MARKUS.

(3) **Schultz-Zehden** agrees partially with the view of von Michel, *viz.*, that all cases of disseminated choroiditis with deposits in which no other cause can be demonstrated are of a tuberculous nature. Schultz-Zehden quotes a case in which a large pigmentary deposit in the neighbourhood of the disc existed for many years, and was shown after death to be unquestionably tuberculous, without any other tuberculous focus being discovered in the body, as evidence of the possibility—first, of choroidal tuberculosis being a primary disease, and, secondly, of its usually benign nature in not giving rise to secondary deposits. The typical appearance of a chronic tuberculous choroiditis with the ophthalmoscope is taken from v. Michel, as follows :—The deposits are yellowish, white, or reddish-white, little or not at all raised, and with indistinct borders. Those deposits which are

slightly more raised tend to be surrounded by a margin of pigment. Small masses of pigment are further occasionally found in the centre of the deposits. From this description it will be seen that the ophthalmoscopic diagnosis of chronic tuberculous choroiditis may be attended with considerable difficulty, and in this respect a general examination of the body for tuberculosis must be undertaken; but in any case, even where tubercle cannot be found elsewhere, the possibility must always be remembered and regarded as probable when it cannot be definitely excluded, and another cause cannot be found. A. LEVY.

(4) **Moisonnier's** patient, an otherwise healthy child of 3 years, was brought in September, 1904, for an affection of the right eye, stated to be of one month's duration. On everting of the right upper lid, which was slightly discoloured and swollen and drooped a little, pale rose coloured soft granulations were found scattered over the tarsal conjunctiva, which was much injected. These were rounded and discrete in the central part but polygonal and pressed against each other to the inner side. They resembled pretty closely the granulations of acute trachoma. There were no yellow spots present. Further, on the border of the tarsal conjunctiva and the cul-de-sac at the junction of the inner and middle thirds of the lid there was an oval ulcer 1 cm. by $\frac{1}{2}$ cm., with dull yellow purulent base and perpendicular edges, slightly raised and everted. The pre-auricular gland was enlarged. Histological examination of pieces removed from the edge of the ulcer showed the presence of typical tubercles, but no bacilli were found. A piece of conjunctiva from the edge of the ulcer, introduced into the anterior chamber of a rabbit, after an unusually long interval (40 days instead of 15-20 days), produced typical miliary tuberculous iritis, in the nodules of which the tubercle bacillus was found. The patient was treated by repeated scarifications of the granular tissue, followed by washing with sublimate solution.

Iodoform ointment was applied to the eye three times daily, and general anti-tuberculous treatment was ordered. At the end of three weeks there was much improvement in the conjunctival condition, but the tarsus had become large and nodular, and the parents getting impatient, took the child to Paris for treatment. Moisonnier considers that infection probably took place from outside through the acino-tubular conjunctival glands of Krause or through a slight phlyctenular ulcer or accidental abrasion. He thinks that the disease was too extensive for excision, while scraping would have been likely to spread the infection. R. J. COULTER.

(5) **Hirschberg** recounts in detail an interesting case of glau-

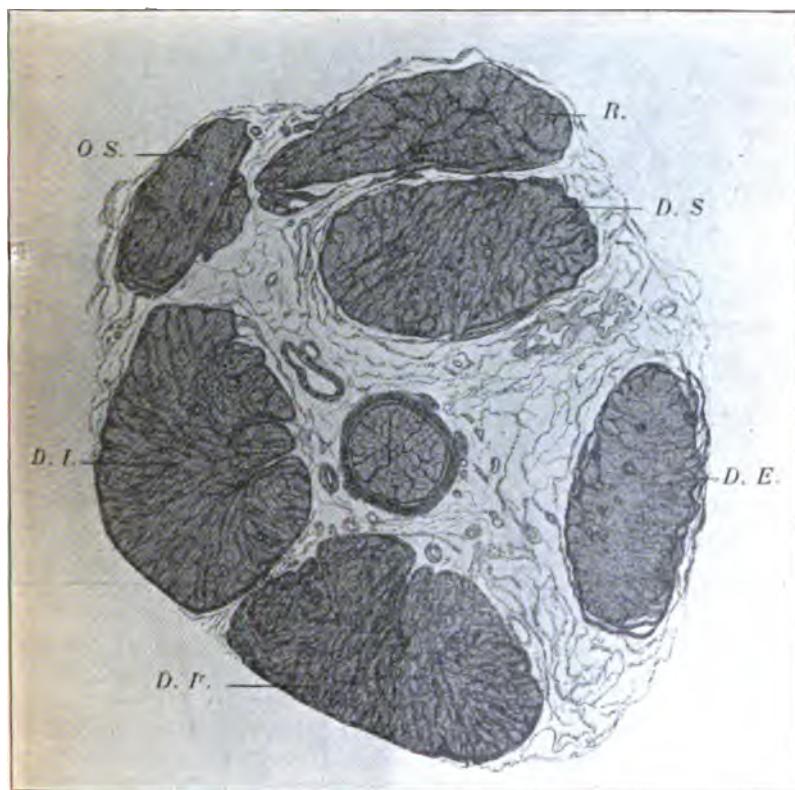
coma occurring in a lady, *æt.* 36 years. This history was that three years previously she developed pulmonary tuberculosis, and, later, pleurisy. As she was recovering from this, suddenly, one night, she noticed a rainbow around the light, and this appearance returned at varying intervals. On examination, vision was almost normal; but there was increased tension, dilatation of the pupil, and some excavation of the disc. The iris was vascular and the periphery appeared swollen and occupied by grayish masses. The condition steadily progressed in spite of eserine, and, finally, an iridectomy was performed. Microscopic examination of the excised bit showed a greatly thickened iris, with granulomatous tissue, containing large numbers of epithelioid and giant cells; no tubercle bacilli could be found. Nevertheless, the case is to be regarded as one of tuberculosis of the iris causing glaucoma.

A. LEVY.

(7) **Rochon-Duvigneaud** and **Onfray** report with care a singular case of bilateral exophthalmos resulting from a tuberculous sclerosis of the extra-ocular muscles.

The patient, a man aged 62 years, complained of slight and partial chemosis and swelling of the eyelids, of five months' duration. These appearances were speedily followed by bilateral exophthalmos, accompanied by pain and limitation in the movements of the eyes. The patient suffered from rheumatic pains, had mitral insufficiency and an irregular heartbeat; all his accessible arteries were hard and tortuous, and his urine presented from time to time a trace of albumen and a little blood. The cause of the ocular symptoms was obscure, but symmetrical tumours, aneurism, and Graves' disease could obviously be put on one side. The exophthalmos became more pronounced, and, finally, led to ulceration of the cornea, for the relief of which the operation of tarsorrhaphy was performed. The patient died from asphyxia and asystole about fifteen months after admission to hospital and twenty months after the eyes became affected. The necropsy revealed cardiac and arterial disease, pulmonary congestion, and splenic and renal infarcts—in short, such lesions as might be expected in a case of uncompensated mitral disease. The orbital contents were exenterated, fixed in formol, hardened in Müller's fluid, embedded in celloidin, and cut serially. The first sections showed nothing abnormal, but when the muscles were reached, the cause of the exophthalmos, from which the patient had suffered during life, became apparent. The muscles, as shown in the figure, had undergone a considerable augmentation in volume, calculated by the authors to amount to about four times the normal size, although it is to be noted that the recti were relatively much more thickened than the oblique muscles. The histological examination of the

muscles yielded results as surprising as they were unexpected. For in a section of one rectus two typical miliary tubercles were found, the one (shown in the accompanying figure) situated in the middle of the muscular fibres, and the other immediately within the aponeurosis. Tubercle bacilli could not be found, despite the most careful search after appropriate methods of

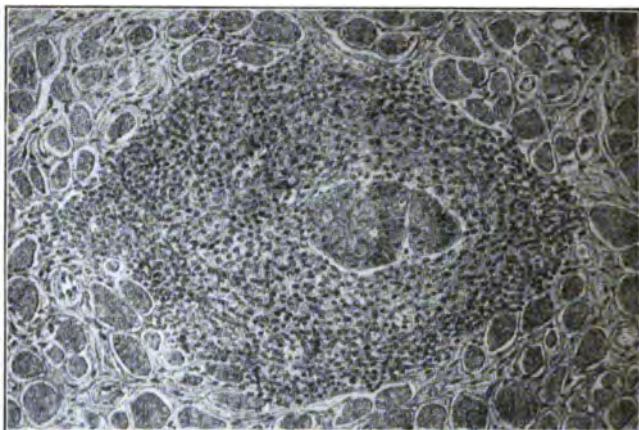


EXPLANATION OF FIGURE.

R. Levator.	D. S. Superior rectus.	O. S. Superior oblique.
D. E. External rectus.	D. I. Internal rectus.	D. F. Inferior rectus.

staining. For the rest, the sclerosis affected the interstitial connective tissue, while the muscular fibres themselves showed various degrees and kinds of secondary degeneration. In each section inflammatory nodules, of irregular shape, ten to fifteen in number, could be found. They were connected with the venules or the capillaries.

The authors consider their case analogous to a form of disease described in the horse by Cadiot, Gilbert, and Roger (*Congrès de la Tuberculose*, 1893), who found tuberculosis affecting almost exclusively the muscles and the skin. They have not succeeded, however, in unearthing any case precisely similar to the one reported in the present communication, although they mention several which present certain points in common with their own.



For example, Guthrie observed augmentation in the size of the recti muscles in a case of aneurism of the ophthalmic artery. Nuel (*Archives d'ophtalmologie*, 1893), in a man of 40 years, discovered hypertrophy of the ocular muscles, found microscopically to be due to hyaline degeneration. Mauch (*Arch. f. Ophth.*, Bd. LXII, H.I.) described an enormous increase in size of the orbital muscles in a woman whose eye was removed on account of an orbital recurrence of a cancer of the superior maxilla. The condition was one of hypertrophy, pure and simple. Busse and Hochheim (*Archiv f. Ophth.*, 1903, fasc. 2) reported a case of inflammatory sclerosis, believed to be of syphilitic origin, of the ocular and the cardiac muscles. Tuberclae appeared to be excluded by reason of the absence of true tubercle nodules, of caseation, and of the specific bacillus. Rochon-Duvigneaud and Onfray believe that their case is essentially different, both clinically and pathologically, from that reported by Busse and Hochheim.

S. S.

XI.—SPRING CATARRH.

Trantas, A.—**Spring catarrh in Turkey. (Le catarrhe printanier en Turquie.)** *Archives d'ophtalmologie*, décembre, 1905.

Spring catarrh, as well known, while tolerably common in some countries, as Germany, Austria, Italy, Switzerland, and Uruguay, is infrequent in others, as England, Holland, Russia, and the United States of America. In the first-named countries it forms from 0·107 % to 0·34 % of all eye patients. Trantas's interesting communication deals with two points concerning this somewhat mysterious disease: first, its relative frequency in Turkey; and, secondly, a new and pathognomonic symptom. Amongst 12,500 eye patients Trantas found spring catarrh in 92—that is, in 0·736 %. The proportion was higher in private practice (1·06 %) than in hospital work (0·42 %). The percentage was found to vary from year to year, so that in certain years the disease may be said to present itself in a quasi-epidemic form. Males are more liable than females, as will at once be apparent from the statement that of the total number of cases (92) seen, 93·5 % were in the former. Of the whole number of cases, 10 (10·869 %) belonged to the palpebral form, 13 (14·13 %) to the limbal form, and 69 (75 %) to the mixed form. Trantas mentions incidentally a curious type of the disease*, which appeared as a grayish ovoid *plaque*, as large as a haricot, lying in the ocular conjunctiva about one centimetre from the limbus. The limbus itself was almost free from change. As to the second point, the sign to which Trantas now draws particular attention is the existence of small round or oval spots, of whitish or greyish-white colour, lying at various depths in the limbal excrescences of spring catarrh. He likens their appearance, when examined with the magnifying glass, to colonies of microbes developed in a gelatine medium. The microscopical examination of tissue taken from three cases shows that they are due to degeneration of epithelial processes, producing cystic cavities.

S. S.

XII.—TRAUMATIC PARALYSIS OF THE OCULAR MUSCLES.

(1) **Chauvel.**—**Traumatic paralysis of the muscles of the eye of orbital origin. (Paralysies traumatiques des muscles de l'œil d'origine orbitaire.)** *Recueil d'ophtalmologie*, XXV (1903) p. 437.

*It is interesting to note that Dr. Marczel Falta (*Archiv f. Augenheilkunde*, August, 1902), also alludes to this very unusual form of Spring catarrh.—EDITORS.

- (2) **Quintela**.—Two cases of paralysis of the superior oblique, following operation on the frontal sinus. (Dos casos de parálisis del oblicue superior, consecutiva a la trepanación del seno frontal.) *Arch. de Oftal.*, Octubre, 1904.
- (3) **Grunert, K.**.—Results obtained in the surgery of the upper nasal cavities with special reference to post-operative disturbance of the ocular muscles. (Erfahrungen aus dem Gebiete der Chirurgie der oberen Nebenhöhlen der Nase mit besonderer Berücksichtigung des postoperativen Augenmuskelstörungen.) *Zeitschrift für Augenheilkunde*, December, 1904.
- (4) **Roche**.—Note on two cases of traumatic ocular paralysis. (Note sur deux paralysies oculaires traumatiques.) *Recueil d'ophtalmologie*, février, 1905.
- (5) **Garipuy**.—Isolated paralysis of the superior oblique from orbital injuries. (Paralysies isolées du muscle grand oblique par traumatisme orbitaire.) *Recueil d'ophtalmologie*, décembre, 1905.

(1) An officer was kicked by his horse upon the left side of the face, an accident followed at once by pain and diplopia. Three weeks after the injury, paralysis of the inferior rectus of the left eye, congestion of the optic disc, and slight haemorrhage into the vitreous body were present, a group of symptoms that subsided after two months' treatment. How are these paralyses brought about? **Chauvel** suggests that the cause may be a haemorrhage into the sheath of the muscle affected. To this may be added the rupture of a certain number of muscular fibres due to the original injury, and perhaps slight traumatic alterations in the nerve-fibres. S.S.

(2) After trephining the sinus by Luc's method, **Quintela** found his patients complained of diplopia due to paralysis of the superior oblique. The cause was operative traumatism. It is clear that the surgeon must deal gently with the inferior orbital wall of the sinus under such circumstances.

HAROLD GRIMSDALE.

(3) **Grunert** describes a method of operation for the radical cure of disease of the frontal sinus and of the ethmoidal cells. It is in the main based upon Killian's method of obliterating the sinus by removal of its anterior wall. Since the operation described necessitates the detachment of the trochlea of the superior oblique muscle and considerable disturbance of the orbital structures, some interference with vision and diplopia are to be expected and

do actually take place, but in practically all cases within a few weeks or months, the eyes regain perfect freedom of movement. The results of the operation may, therefore, be described as excellent.

A. LEVY.

(4) **Roche's** first case was that of a young man, aged 18 years, who was struck on the lower border of the left orbit by the buttoned point of a foil. Apart from a small scratch on the lid, and a localised ecchymosis of the adjoining conjunctiva, the only result was the development of a homonymous diplopia, due to paralysis of the left inferior oblique. The diplopia disappeared in three days, and recovery was complete in a week. The second case was that of a woman, aged 63 years, who received a blow on the lower margin of the orbit from a cow's horn. There was a rupture of the sclerotic near the upper corneal limbus, hyphaëma, ecchymosis of the lids and cheek, and almost complete ptosis. The ptosis completely disappeared after a month's treatment with cold compresses and adrenaline drops.

The author discusses the pathogeny of these cases, and after excluding the possibility of nerve injury due to fracture of the base of the skull, rupture of the muscle, lesion of the nerve near the apex of the orbit, bulbar haemorrhage, and traumatic hysteria, he concludes that the symptoms can only be produced by a direct lesion of the muscle itself, or of its nerve filament, which consists in a haemorrhage into the sheath of the muscle tendon or the sheath of the nerve. When the haemorrhage becomes absorbed the symptoms are relieved.

J. JAMESON EVANS.

(5) **Garipuy** records three cases of paralysis of the superior oblique due to orbital injuries. The injuries consisted in wounds, implicating the inner angle of the orbit, from a knife, a wooden bench, and the hoof of a cow. Apart from the symptoms of paralysis of the superior oblique and the damage to the lids, there was sub-conjunctival ecchymosis and, in two cases, some bleeding from the nose on the injured side. Two of the cases recovered, under treatment by weak Faradic current, in about two months; the other was lost sight of. An analysis of the eleven recorded cases shows that these accidents generally occur in adult males, and that they are slightly more common on the left side. The traumatic agent is generally a blunt object, such as the corner of a bench, the horn or hoof of a cow, an iron bar, a branch of a tree, &c. In three cases only was it a pointed instrument (knife and foil). Haemorrhage from the nose has been recorded only in one case besides the author's two cases. In one case there was an insignificant retinal haemorrhage, but in the other cases the globe was not involved and vision was good. The injury always involved the region of the pulley of the superior oblique, except in two cases. In one of the latter

the muscle was divided and the reflected tendon detached from the sclera. The other was the result of a fall on the orbital region, and was regarded as being possibly of intracranial and nuclear origin.

The pathogenesis of the paralysis probably consists in an effusion into the tendon sheath or pulley. The permanent cases are due either to detachment of the pulley or tendinous insertion or division of the muscle, but they are exceptional. The ordinary cases recover spontaneously in about two months. Should the symptoms be slow in abating, it is well to apply a Faradic current of strength just sufficient to produce very feeble contraction of the orbicularis palpebrarum two or three times a week, for three or four minutes at a time. In the permanent cases advancement of the inferior rectus on the same side, as suggested by Eperon, might be employed.

J. JAMESON EVANS.

XIII.—TREATMENT.

(*Third Notice.*)

- (1) Chevalier.—Notes on ocular therapeutics. (*Notes de thérapeutique oculaire.*) *L'Ophthalmologie Provinciale*, mai et juin, 1905.
- (2) Baudoin.—Collargol frictions in panophthalmitis. (*Le collargol en frictions dans la panophtalmie.*) *La Clinique Ophthalmologique*, 25 juillet, 1905.
- (3) Guibert.—Combined intravenous and subconjunctival injections. (*Des injections intra-veineuses et sous-conjonctivales combinées.*) *La Clinique Ophthalmologique*, 25 juillet, 1905.
- (4) Golesceano, C.—Ocular atmotherapeutics. (*Atmitherapie oculaire.*) *La Clinique Ophthalmologique*, 10 et 25 août, 1905.
- (5) Valude.—On the treatment of epitheliomata by radiotherapy. (*A propos du traitement des cancroïdes par la radiothérapie.*) *Ann. d'Oculistique*, T. CXXXIV, p. 81, août, 1905.
- (6) Snyder, Walter Hamilton.—The physiologic action of dionin. *Journ. American Medical Association*, August 12th, 1905.
- (7) Nerli.—Collyria of nitrate of silver and sulphate of zinc. (*I collirii al nitrato d'argento e al solfato di zinco.*) *La Clinica Oculistica*, Setiembre, 1905.

- (8) Chevalier.—Some remarks on the treatment of phlyctenular keratitis. (Quelques remarques sur le traitement de la kératite phlycténulaire.) *L'Ophthalmologie Provinciale*, II, 95, septembre, 1905.
- (9) Sanchez, Aguilera (Seville).—Treatment of glaucoma by Trunecek's serum. (El suero de Trunecek en el tratamiento del glaucoma.) *Archivos de Oftalmología Hispano-Americanos*, Setiembre, 1905.
- (10) Reina.—Treatment of spasm of accommodation by cocaine. (Tratamiento del espasmo acomodativo por la cocaína.) *Archivos de Oftalmología Hispano-Americanos*, Octubre, 1905.
- (11) Wray, C.—Toxic amblyopia. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 360.
- (12) Gibson, J. Lockhart.—Soluble sulphate of quinine in ophthalmic practice. *Australasian Medical Gazette*, and *The Antiseptic*, November, 1905.
- (13) Steinkühler, M.—Protargol. *Woch. f. Ther. u. Hygiene des Auges*, November 2, 1905.
- (14) Wolffberg.—Sapal in tubes. (Sapal in Tuben.) *Wochenschrift für Therapie und Hygiene des Auges*, 2 November, 1905.
- (15) Darier, A.—Severe purulent ophthalmia in an adult throttled in four days. (Ophtalmie blennorragique grave de l'adulte jugulée en quatre jours.) *La Clinique Ophthalmologique*, 10 novembre, 1905.
- (16) von Arlt, F. R.—Dionin and atropin in posterior synechiae. (Dionin und Atropin bei hinteren Synechien.) *Wochenschrift für Therapie und Hygiene des Auges*, 28 Dezember, 1905.
- (17) Ryerson, G. Sterling.—Dionin in diseases of the eye. *Canada Lancet*, January, 1906.
- (18) von Arlt, F. R.—An improved preparation of itrol (Credé) for eye use. (Itrol Credé für Oculis in verbesserter Aufmachung.) *Wochenschrift für Therapie und Hygiene des Auges*, 28 Januar, 1906.
- (19) Maynard, Major F. P.—A note on alypin. *Ind. Med. Gazette*, February, 1906.
- (20) Foerster.—Dionin and atropin. (Dionin und Atropin.) *Wochenschrift für Therapie und Hygiene des Auges*, 15 Februar, 1906.

(1) **Chevalier** describes routine treatments for various forms of conjunctivitis.

(2) **Baudoin** writes enthusiastically on the value of frictions with collargol ointment (15% to 20%) in septic infections of the globe. A bad case of post-operative infection reminded him of Troussseau's paper (*Clinique Ophtal.*, 10 mars, 1903) on collargol frictions in irido-choroiditis. The wound in Baudoin's case had been found severely infected at the first dressing. The skin of the arm at the elbow having been scrubbed to redness, 20% collargol ointment was rubbed in for eight minutes, and a pad and bandage were applied. The eye dressing consisted of compresses of 5% hermophenyl and instillations of methylene blue and scopolamine. On the following day there was an extraordinary improvement. Frictions were continued, and in five days all danger was over. Another case, in which an iron barb had entered the eye and caused intraocular haemorrhage and prolapse of vitreous with infection, got well—as regards the symptoms of infection—in eight days under the same treatment.

ERNEST THOMSON.

(3) **Guibert** has employed the combination of intravenous and subconjunctival injection in various classes of cases with very good effect. He quotes cases of parenchymatous keratitis, macular choroiditis, serous iritis, commencing tabes, myopic choroiditis, and irido-choroiditis, which he has thus treated. The author's favourite intravenous injection seems to be 1 centigramme of cyanide of mercury introduced at the bend of the elbow.

ERNEST THOMSON.

(4) **Golesceano** describes an apparatus consisting of a vaporizer and eyepiece, with a hand bellows for mixing air with the water vapour, for the direct application of heat to the eye. For application to the nasal mucous membrane, a special nose-piece is also described.

ERNEST THOMSON.

(5) **Valude** records four cases treated by radio-therapy which he considers to be representative of the various forms of epithelial tumour to be met with in the eyelids. (1) Malignant spreading epithelioma unsuccessfully treated with radium. (2) Epithelioma of the skin and mucous membrane; no improvement with radium; some improvement after a prolonged course of X-rays. (3) Simple cutaneous epithelioma cured by two applications of radium. (4) Papilloma cured by one application of radium. He considers that in all cases of epithelioma accessible to the knife, excision is the surest and most rapid treatment, but that although radiotherapy is doomed to failure in malignant relapsing cases, it may be useful in non-malignant cases in which operation is refused, or as a palliative in inoperable cases.

R. J. COULTER.

(6) From individual experiment and wide reading upon the subject, **Snyder** asserts that "it might be well to introduce.... an hypothesis to explain the clinical and microscopic actions of dionin, and to explain the clinical reports which, on comparison, at times are contradictory." Many slides were examined by the author, but only the marked features were photographed. From his findings, he deduces that dionin acts in a purely local manner—"greatest where the drug has actually rested." He states that the most marked effect of the material "is in eyeballs in which the tension is increased." He believes that its entire action can be explained by the fact that it has some disassociating effect upon the intercellular cement substance, thus allowing a transudation of serum from an eyeball which is under pressure. He thinks that analgesia is to be explained particularly by a lessening of intraocular tension, which relieves pain, and in a general way by the well-known power of all derivatives of opium. It has been claimed for the drug, he states, that it is a lymphagogue, "but opium (he says) lessens secretions, and the increased flow of apparent lymph is not lymph, but serum, which does not contain cells of any description. Lymph (he tells us) contains colourless blood cells, and if the action of dionin was that of a lymphagogue, examination of the tissues would reveal the characteristic components of this fluid." He believes, therefore, that it is only a stimulant secondarily, and that after the oedema the fluid is absorbed as lymph, as it would be in oedema from any cause. Careful examination of his slides reveal that locally wherever the drug has been applied, there is some change which permits fluid under pressure in the globe to pass through and into the tissue, producing an oedema with consequent lowering of intraocular tension. From these laboratory findings, he asserts, "we should expect its action to be most marked in pathologic eyes, and, in these, greatest when the tension is highest." That its reaction subsequently is lessened rapidly, unless the tension is renewed, is a fact, he believes, which is familiar to all who have employed the drug. He has tried dionin in conjunctival haemorrhage without any pronounced reaction; thought without any beneficial results over the ordinary methods of treatment; "evidently (he says) lacking the pressure factor." In beginning pannus, he has "cleared up the cornea, and resisted permanent opacity more satisfactorily than with any other previous form of treatment, the lid, of course, being treated for the cause." In glaucoma, he prefers dionin to eserine; relief from any pain being very marked, due, he thinks, to mechanical release from pressure. In old vitreous opacities he has had poor success, possibly, he asserts, because he has not employed the drug long enough. He early abandoned the employment of solu-

tions, placing specks of the powdered form of the material upon two or three places upon the cornea, he especially finding the results better when the drug is used this way than when it is employed in solutions or by applications made in one place; this, he claims, is further proof that its action is, as suggested in his hypothesis, a purely local one.

C. A. O.

(7) Nerli complains that these drugs are ordered with too great frequency and in too strong solution, and advises that very weak solutions only should be given to out-patients, who cannot be seen often.

HAROLD GRIMSDALE.

(8) Chevalier deals with the indications for the employment of bandages, atropine, or eserine, and massage with or without medicinal applications in the treatment of phlyctenular keratitis. He quotes Ginestous as claiming to have obtained cures in obstinate cases of this disease by administrating 4 grammes of dry beer yeast daily, in addition to the usual local applications, and discusses the treatment of leucomata by (1) drops containing 2·5% to 10% of benzoate of lithium, and (2) subconjunctival injections of (a) sea-water and (b) sterilised air.

R. J. COULTER.

(9) It is a well-known hypothesis that glaucoma depends to some extent on a condition of general arterio-sclerosis. Whether the connection is direct or indirect, the fact seems clear that the subjects of this vascular disorder are also especially liable to be attacked by increase of intra-ocular tension. Any means, therefore, that prove of avail to relieve the vascular disease will probably have a beneficial effect on the other. Trunecek's inorganic serum has been shown to exercise a good influence over the development of calcification of the arteries, probably because phosphate of calcium is soluble in a solution of chloride of sodium at certain strength. It has been shown that the body loses its chloride of sodium as age advances; the use of inorganic serum replaces the missing inorganic salts.

Seeing the good effects gained in arterio-sclerosis, Sanchez hopes to benefit glaucoma, especially the chronic form, which has proved more intractable to surgical interference, by injection of the same fluid. So far, his results are not decisive in either direction. He has treated nine cases of simple glaucoma, for periods of from 10 months to 3 months. In six, vision has remained the same; in two, has gone down, and in one has improved. In eight the tension has been reduced—has remained normal. The general condition of all the patients has improved. In all the use of the serum was combined with the use of myotics. Sanchez compares this result with observations taken on nine other cases of simple glaucoma during the same period. In six of these, vision has diminished, in five the tension has

remained high, and one has died of cerebral haemorrhage. The figures are too small to prove anything, but they suggest that the serum at least does no harm. HAROLD GRIMSDALE.

(10) **Reine** has succeeded in stopping spasm of accommodation in patients suffering from this troublesome condition by instillation of a 5% solution of cocaine every night. Few such patients resist this drug, and these must be treated by atropine or some other mydriatic, as has been the custom heretofore.

HAROLD GRIMSDALE.

(11) Poisoning by tobacco, according to **Wray**, may show itself by tachycardia, with or without amblyopia. The abandonment of tobacco, however, does not in every instance lead to disappearance of the amblyopia. A "toxic breath"—*i.e.*, a breath laden with tobacco exhalations—always accompanies toxic amblyopia, but is not present when tachycardia is the only manifestation of toxæmia. Pipe smokers furnish the subjects of amblyopia, while cigarette smokers are much more prone to develop tachycardia. It is doubtful, indeed, whether cigarettes are ever responsible for tobacco amblyopia. In treatment, Wray attaches importance to drinking large amounts of warm water (five pints a day), and to taking brisk exercise in the open air. He also administers potassium iodide, on account of its diuretic action.

(12) **Gibson** has formed a very favourable opinion of the action of quinine bisulphate in the treatment of purulent ophthalmia and of hypopyon-keratitis. The solution he employs contains to each ounce of water 3 grains of quinine and 12 grains of boric acid, and is to be used freely to the eyes every three hours, night and day. Gibson deprecates the addition of cocaine to any lotion employed for the cure of conjunctivitis.

(13) **Steinkühler** ascribes the irritation now and then set up by protargol to an imperfect way of dissolving the powder, or to the employment of stock solutions. He recommends the use of tablets, each containing 0·25 gramme, as a convenient way of preparing fresh solutions. S. S.

(15) **Darier**, ever ready to champion argyrol, relates a case of gonorrhœal ophthalmia in which argyrol was the main weapon used. Day and night the eye was bathed out with permanganate (0·30 per 1000), and then flooded with 10% argyrol every half-hour. Darier, at his visit, used 25%, and occasionally protargol 25%. The eye was out of danger in four days. Silver nitrate was not employed at all. The article extends to eleven columns of the periodical, and reads as dramatically as the account of a battle. ERNEST THOMSON.

(16) **von Arlt** has found that when even repeated use of atropin in solution or in solid form fails to break down adhesions,

if first of all powdered atropin, and seven minutes afterwards powdered dionin, be employed, and the patient kept in the dark, a good result will be obtained. He requests other oculists to put this to the test.

ERNEST THOMSON.

(17) **Ryerson** has used dionin in several diseased conditions of the eye, such as iritis, opacities of the dioptric media, and in severe ocular pain. Altogether, Ryerson believes that in dionin we have found a therapeutical agent of great value in eye work.

(18) **von Arlt** points out that the great instability of itrol, or citrate of silver, has prevented this excellent and almost painless preparation from finding general favour. The salt is most sensitive to light and moisture, and to the products of combustion of gas, and unless immediately after use the darkened bottle in which it is contained is corked up tightly the contents become useless. Further, it was originally put up in 10-gramme bottles, and the greater part of the itrol had to be thrown out and wasted. The cost of such a procedure was too great to be tolerable. **von Arlt**, however, has now got the firm of **von Heyden** to put up more finely powdered itrol in black bottles containing 1 gramme and 0·5 gramme, provided with a large strong cork. Using it in this small bulk, and with care to recork immediately after use, the oculist can make use of a bottle of itrol for three days, but no longer.

ERNEST THOMSON.

(19) **Maynard** has used alypin, one instillation of a 2% solution, in over a hundred cases, mainly cataract extractions, and finds it as satisfactory as the usual three instillations of a 4% solution of cocaine. The anaesthesia produced in the cornea and iris appeared more complete than in the conjunctiva.

H. HERBERT.

(20) **Foerster** having observed Arlt's article above quoted and a severe "strumous" case with blepharospasm, corneal ulceration, and contracted pupils, which had resisted for seven months all the usual forms of treatment. He thereupon applied Arlt's method, and in half-an-hour the pupils were dilated almost *ad maximum*. After this he maintained the action by instillation twice daily of drops containing atropin 1%, and dionin 50%. Ulceration rapidly diminished, and in fourteen days all redness of the eyes had disappeared.

ERNEST THOMSON.

XIV.—MISCELLANEOUS.

Davis, A. Edward.—Eye symptoms of cerebrospinal meningitis. *Medical News*, 8th April, 1905.

Davis had an opportunity of examining about 30 cases of epidemic cerebrospinal meningitis in New York in 1904, and

noted the following eye symptoms:—neuro-retinitis (8) ; conjunctivitis (8) ; pupillary changes (3) ; venous congestion of fundus (2) ; paralysis of ocular muscles (2) ; keratitis (1) ; and irido-choroiditis (1). Of the 8 patients affected with neuro-retinitis, 4 died, 2 were cured, and 2 were not followed up. The percentage of deaths was thus equal to 66. In the 10 patients who manifested no eye symptoms there were 50 % of deaths. "Such statistics," says Davis, "speak for themselves and need no comment."

Mitchell, William.—Case of cutaneous anthrax treated without excision with Sclavo's anti-anthrax serum: recovery. *British Medical Journal*, July 15th, 1905.

Mitchell reports the following case of malignant pustule of the eyelid treated successfully with Sclavo's serum:—a



Photograph, eight weeks after commencement of disease, showing amount of ectropion after complete cicatrization : A, upper ciliary margin ; B, swollen conjunctiva, ocular ; C, everted inner surface of upper eyelid ; D, outer end of cavity left by separation of slough ; E, area from which necrosis of lower eyelid separated, showing oedematous lower eyelid above it.

woman, aged 25 years, engaged as a wool carder, developed a red papule on the left upper eyelid, accompanied by local oedema

and some constitutional disturbance. On examination, Mitchell found a pustule, about $\frac{1}{4}$ -inch in diameter, on the centre of the eyelid. The centre was of dark colour and umbilicated, while more or less confluent vesicles were present around its margin. Fluid obtained from the vesicles, etc., showed anthrax bacilli in large numbers. Twenty c.cm. of Sclavo's anti-anthrax serum were injected, followed next day by 50 c.cm. of the same fluid. Ten grain doses of sodium salicylate were administered every three hours, and locally the parts were treated with compresses soaked in mercury perchloride, 1 in 4,000. The total amount of serum injected amounted to 100 c.cm. The woman, who had manifested considerable systemic disturbance during the illness, made a good recovery, but, as shown by the photograph, with complete ectropion of the affected eyelid.

Snyder, Walter Hamilton.—Optic atrophy following iodoform poisoning. *Ophthalmic Record*, March, 1904.

A man, aged 58 years, was treated for hernia by the injection of carbolic acid, a process followed by sloughing of the parts, to which iodoform was then applied. Some five weeks later, the patient, a myope, became unable to read or to see clearly at a distance. R.V. = 10/200; L.V. = 8/200. Lenticular opacities. Field of vision much contracted, with a positive central scotoma for red. Retinitis and papillitis. Patient complained that everything looked greenish-yellow to him. Improvement.

Widmark, Johan—A case of tobacco amblyopia, ending in complete amaurosis. *Hygiea*, December, 1904.

A labourer, 39 years old, who had chewed tobacco enormously since he was 15 years old, became amblyopic. The temporal half of the optic discs was pallid, and there existed complete red- and green-blindness. The visual fields were moderately and concentrically narrowed, with a central scotoma for blue, enclosing a smaller scotoma for white. V. was about fingers at 1-2 feet. There were no alterations of the pupils or other symptoms of tabes. After the patient was received in the hospital, the state of the eyes at first improved very quickly. The external limits of the visual fields became normal. V. increased to fingers at 10-12 feet, and the perception of red returned in one of the eyes, except in the centre, where a central scotoma of characteristic form was constituted. But when the patient, after a month, left the hospital, his eyes grew worse, and after three months he was quite amaurotic with atrophic optic discs.

J. WIDMARK.

Axenfeld, Th. — On isolated ruptures of Descemet's membrane. (*Zur Kenntnis der isolierten Dehiszenzen der Membrana Descemeti.*) *Klin. Monatsbl. f. Augenheilkunde*, August, 1905.

Peculiar lines in the cornea, resembling spun glass, in cases of hydrophthalma have been proved to be due to defects in Descemet's membrane. Similar corneal changes were observed by Axenfeld in a case of uncomplicated megalocornea (globular cornea) and, more interesting still, in cases of keratoconus. In these latter cases the rupture of Descemet's membrane accounted for acute exacerbations of the condition, as manifested by inflammatory symptoms, a sudden decrease of sight, and the occurrence of a dense parenchymatous opacity in the corneal cone.

C. MARKUS.

Jacobsohn, Leo. — Sport and eyesight. (*Sport und Auge.*) *Woch. für Ther. und Hygiene des Auges*, 14 September, 1905.

Jacobsohn relates the case of a motor-cyclist, who travelled very fast on his machine from Berlin to Frankfort without protective goggles. By the impact of dust and of flies, the corneal epithelium was so much damaged that R.V. = the counting of fingers, and L.V. = 5/15. Subsequent history lacking, because patient passed from under Jacobsohn's observation.

ERNEST THOMSON.

Bistis, J. — Upon traumatic enophthalmos and its pathogeny. (*Sur l'enophthalmie traumatique et sa pathogénie.*) *Archives d'ophtalmologie*, septembre, 1905.

Bistis, of Athens, reports a case of enophthalmos in a man of 45 years, the result of a fall from a horse. The condition was observed 20 days after the accident—that is to say, as soon as the swelling of the eyelids had subsided. The symptoms included marked recession of the eyeball, narrowed palpebral fissure, and slight ptosis. On the other hand, intraocular tension, sight, field, and pupil were normal. After discussing the different views held as to the causation of traumatic enophthalmos, Bistis expresses his belief that the condition is due to paralysis of the sympathetic innervating Müller's muscle, accompanied by paralysis of the smooth muscular fibres contained in the orbital prolongations of the capsule of Tenon. He supposes that the original injury sets up a disturbance in the supra-orbital nerve, which is transmitted by the ciliary ganglion to the sympathetic.

S. S.

Axenfeld, Th.—On præcorneal iridotomy. (Prækorneale Iridotomie.) *Klin. Monatsbl. f. Augenheilkunde*, Januar, 1906.

The optical effects of iridotomy are generally superior to those of iridectomy. **Axenfeld** describes a method of operating which has given him very gratifying results in three cases. The corneal section should be made $\frac{1}{2}$ mm. outside the limbus and 3-4 mm. long. The next point is to produce a prolapse of the iris by pressure with the fixation forceps and counterpressure at the corneal wound. The prolapse is then incised by a quick radial cut with the iris scissors, and the divided iris is replaced by means of a spatula. The artificial pupil is at first extremely narrow, but widens with the refilling of the anterior chamber. The danger of the iris carrying microbes into the anterior chamber and infecting the eye need not be feared, and an objection would not be justified on that account to præcorneal iridotomies generally. But the operation is contra-indicated in cases of fluidity of the vitreous or dislocated lens, where the iris should be drawn forward with a blunt hook instead of being made to prolapse.

C. MARKUS.

Doyne, Robert W., and Stephenson, Sydney.—A note upon cribiform choroido-retinitis, a rare form of fundus disease. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 110.

Doyne and **Stephenson** describe and illustrate four cases of an unusual condition of the fundus, which may possibly represent a peculiar and rare form of syphilitic choroido-retinitis. It is characterised by large membranous sheets of whitish exudation lying beneath the retinal vessels, and showing few or many perforations. These perforations (not essential to the condition) may allow the normal red of the choroid to shine through them, or else may be more or less filled with pigment. In some of the cases, acquired syphilis was undoubtedly the cause.

Evans, J. Jameson.—Diffuse gummatous infiltration of sclera and episcleral tissues. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 188.

Snell, Simeon.—Intra-ocular tumour completely enveloping the optic disc. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 190.

A man, aged 37 years, presented a nodular, solid-looking mass, completely concealing from view the optic disc of one eye. The surface of the mass, which was of greyish-white colour, showed numerous small blood-vessels, together with ecchymoses.

The mass was raised, so that its most prominent portion could be seen with a + 11 D. lens (macular region + 2 D. or + 2·5 D.). The sight of the affected eye was lost. The eye was removed, and a small spindle-celled melanotic sarcoma found to originate from the choroid, to have broken through the elastic lamina, and to have fungated. The growth extended outwards through the sclera and between the optic nerve and its sheath.

Hotta, G.—Experimental researches on the infection of corneal wounds by saliva. (*Experimentelle Untersuchungen über die Infektion von Hornhautwunden durch Speichel.*) *Klin. Monatsbl. f. Augenheilkunde*, September, 1905.

Hotta injured the corneæ of rabbits in various ways and then brought the wounds in contact with human saliva. One fact stands out clearly and prominently as the outcome of these experiments, and that is the importance of the kind of corneal wound which is exposed to this source of infection. For the results were as follows :—(a) No infection of 30 smoothly cut Graefe knife wounds ; (b) only one infection of 30 corneal erosions ; (c) invariable infection of 30 interstitial or "pocket" wounds. In the light of these observations, the risk of the operator infecting an eye wound with his saliva by speaking during the operation, seems very remote, and the wearing of a gauze veil before nose and mouth cannot be considered to be a precaution of urgent necessity.

C. MARKUS.

Spurgin, Percy B.—Two cases of poisoning from the application of atropine to the eyes. *Lancet*, September 30th, 1905.

Two children who were using atropine drops to their eyes, developed symptoms of poisoning, which presented a certain likeness to those attending scarlet fever. Recovery was prompt in both instances.

Paton, Leslie, and Paramore, W. Erasmus.—Intravitreous haemorrhage. *Lancet*, October 28th, 1905.

This suggestive communication deals with the connection between vitreous haemorrhages, on the one hand, and the coagulation time and calcium contents of the blood, on the other. Clinical details are given of three cases of vitreous haemorrhage, in each of which examination of the blood by Dr. Wright's methods showed : 1. That coagulation occurred faster than normal, and 2. that the proportion of calcium salts was higher than normal. These observations lead Paton and Paramore to suggest that it is wrong to treat intravitreous haemorrhage with

calcium salts, and that the administration of drugs capable of reducing the calcium contents (quaintly called "decalcifying" agents), such as citric acid, would be more in accordance with the results obtained from analysis of the blood. It is suggested, moreover, that the haemorrhage may result from thrombosis in one of the small retinal veins.

Schulze, Walter.—*Inoculation of the eyes of rabbits with syphilitic material.* (*Impfungen mit Luesmaterial an Kaninchenäugen.*) *Klin. Monatsbl. f. Augenheilkunde,* September, 1905.

Schulze injured the iris of 26 rabbits with the keratome and rubbed syphilitic material into the wounds. These inoculations were followed by symptoms of general debility, and many animals died. The local re-action consisted in an iritis of moderate severity and the development of small reddish nodules in the iris which attained the maximum size of a millet grain 3 to 4 weeks after the infection. The inflammatory symptoms subsided gradually, the nodules became gray and diminished in size without, however, disappearing entirely; in some instances they were visible three months after the inoculation. On microscopical examination, the earliest changes showed themselves in the blood vessels; later on, the surrounding connective tissue proliferated, leading to a considerable thickening of the iris about three weeks after the infection. Of special interest was the invariable occurrence of a flagellated micro-organism, the so-called cytorrhycetes luis (Seigel), in the connective tissue near the blood vessels, while the presence of spirochaeta pallida could not be detected.

C. MARKUS.

REVIEWS.

Royal London Ophthalmic Hospital Reports. Edited by WILLIAM LANG. Volume XVI, Part III, October, 1905. London: J. and A. Churchill, 7, Great Marlborough Street. Price 5s.

This volume of the Royal London Ophthalmic Hospital Reports contains communications by Nettleship, E. T. Collins, Coats, Macnab, Mayou, Owen, and Pascheff, mainly, as is usual, of a pathological nature. The communications will be abstracted in due course in the columns of THE OPHTHALMOSCOPE. The volume is liberally illustrated.

Bulletin de la Société d'ophtalmologie d'Égypte, fondée le 20 décembre, 1902. Alexandrie : Typo-lith., V. Penasson, A. V. Horn, Succ. 1905.

This modest paper-backed volume of 54 pages represents the proceedings of the Egyptian Society of Ophthalmology from the date of its inauguration, November 16th, 1903, to the meeting held June 17th, 1905. The communications are brief. They are not illustrated. They include papers from Drs. Eloui Pacha, Nasr Farid, Chedoudi, Jacovidis, Osborne, Fenoaltea, de Wecker, Lakah, Guarino, Démétriadis, and Briand. We trust that from so small a beginning the new Society will flourish, and diffuse the light of modern ophthalmology over the ancient land of the Pharaohs! It has the best wishes of THE OPHTHALMOSCOPE.

Manual pratique pour le choix des verres de lunettes et l'examen de la vision. Par les docteurs SCRINI et FORTIN. Paris : Vigot frères. 1906. Price 4 francs.

This little book, as its name implies, is an elementary handbook on the practice of sight-testing and the choice of spectacles. It is agreeably written, and a reader will be repaid for the perusal of its 200 pages, if in no other way, by the pleasure of approaching the subject along different lines from those of similar English text-books. Noticeable points in the book are a lucid introduction to the properties of lenses without mathematical formulæ, an interesting chapter on visual acuteness, with an examination of the relative effects of definition and illumination as factors, and especially the large proportion of space devoted to the problems of convergence and binocular sight. Perhaps, in fairness, one might add that the last chapter, devoted to spectacle and eyeglass frames, does not reach the standard of the rest of the book. The authors advocate full correction for myopia, and, as a rule, no concession to weak accommodation; they reserve their opinion on lens extraction in cases of high myopia, and would not allow the use of atropin as a treatment except for ciliary spasm; beyond a certain degree of anisometropia they recommend mechano-therapeutic methods, and the gradual approximation of lenses to the full corrections. There are many neatly-worded phrases scattered through these pages, as that "emmetropia is a limit, and like all limits is artificial;" "on ne naît pas myope, on le devient," and so on; a piece of good advice is that all corrections by prisms should be divided between the two eyes. Perhaps it is not fair, in a book of this kind, to comment on omissions, which may have been deliberate; but one could have wished that something had been said of sectional

and of unequal accommodation. The authors explain lucidly the relation of accommodation and convergence, pointing out that their two amplitudes may have only partial coincidence ; they do not, however, suggest that *malaïse* may be due to an approximation to this condition, nor do they indicate any method of treatment ; one would also like to have seen some note of the effect of oblique cylinders on the problem of centring spectacle lenses.

W. A. DIXEY.

Ein Vorschlag zur Trachoma-Behandlung. Von Dr. med G. HIRSCH, Augenarzt in Halberstadt. Halle : Verlag von Carl Marhold. 1906. Preis 0.50 Mark. **An Essay on the Treatment of Trachoma.** By Dr. G. HIRSCH, Ophthalmic Surgeon in Halberstadt. 1906. Price 6d.

After some prefatory remarks in which the author notices that the disease is one of great antiquity, being known to the Egyptians in the 16th century, B.C. ; that it is of constant occurrence where men and women congregate together under unfavourable hygienic surroundings ; that it is comparatively rare in remote and isolated districts ; and that it has proved recalcitrant to numerous forms of treatment. Local stimulants of all kinds have been applied to the conjunctiva ; gonorrhœal pus has been introduced between the lids, jequirity infusion dropped in with many antiseptic solutions, and, more recently, Röntgen rays and radium emanations without satisfactory results. The plan he recommends is first to render the conjunctiva insensitive by the instillation of a drop of cocaine solution, of the strength of three per cent. or a one per cent. solution of a coin. He then prepares a solution of oxycyanate (cyanide) of mercury, containing one part to 4 in 3,000 of water. Of this solution he takes up seven divisions of a Pravaz' syringe and adds to it, so as to fill the remaining three divisions, a one per cent. solution of a coin. This mixture is injected, not subconjunctivally, but into the tissue of the conjunctiva rendering it oedematous. The injections should be made at two or three points, both of the upper and lower lids, and may be repeated at intervals of from two to six days. All discharge should be carefully removed with solution of boric acid, the cleansing being facilitated by the obliteration consequent upon the injection.

H. P.

The Changes produced by Inflammation in the Conjunctiva.

Hunterian Lectures Royal College of Surgeons, 1905. By M. S. MAYOU, F.R.C.S., Chief Clinical Assistant to Royal London Ophthalmic and London Hospitals. Jacksonian Prizeman and Hunterian Professor Royal College of Surgeons, England. London : John Bale, Sons & Danielsson. Pp. 168. Price 10/6.

This book, which contains part of the work that obtained the Jacksonian Prize, 1903, is made up of the three Hunterian Lectures delivered before the Royal College of Surgeons in 1905. They form a careful record of a research, extending over three years, into a difficult but at the same time important branch of pathology.

In the introduction to the first lecture the author gives the formula for, and the method of using, Pappenheim's plasma stain, which he finds far superior to Unna's polychrome methylene blue for demonstrating the changes occurring in the cells of the conjunctiva. He then proceeds to describe the development of the eyelids and conjunctiva in the human foetus, with a special paragraph on the development of the same in the snake. The author finds that the epiblast lining the conjunctiva remains as a single layer of cells until after the lids have separated, when thickening of the bulbar conjunctiva takes place; by means of this fact he places the date at which the human foetal lids separate at the beginning of the fifth month. After an account of the conjunctiva at birth, there follows a detailed description of the changes in the conjunctiva which occur as a result of inflammation: firstly, as regards the epithelium, under which xerosis, primary and secondary, is discussed, and then as regards the sub-epithelial tissue. The various cells which form this tissue are described minutely, together with an excellent coloured plate, showing the various cells, as stained with Pappenheim's stain.

The second lecture deals with traumatic conjunctivitis, with special reference to the changes in the cellular elements as the result of wounds. Mr. Mayou begins with a record of numerous experiments performed on the conjunctiva of rabbits, together with the microscopical examination after different intervals of time. He then gives his conclusions with special reference to the origin of the plasma cell. The evidence, he thinks, is strongly in favour of the origin of the plasma cell being with the mononuclear leucocyte from a common source, most probably the endothelium or perithelium, and not with the connective tissue. This is followed by an account of implantation cysts of the conjunctiva and the two varieties described, the author having been fortunate in obtaining a case in which the epithelium was directly carried in by a foreign body, *i.e.*, the rare variety. A description of the case with illustrations is given. The rest of this lecture is devoted to the development of the lymphoid tissue and its significance, follicular formations and their histology, and, lastly, an interesting account of the diverse cells found in the various forms of conjunctivitis.

The third lecture commences with an account of trachoma, with

description by coloured plates of the follicles, and the differential diagnosis between trachoma and follicular conjunctivitis, both clinically and microscopically. One point the author brings out is that the sub-epithelial tissue in trachoma consists almost entirely of plasma cells, while in follicular conjunctivitis, though occurring in large quantities near the follicles, they are not packed beneath the epithelium in the way they are in trachoma. The treatment of trachoma is dealt with at some length. The prophylaxis and sanatorial treatment are first discussed, and then the treatment of the local condition. This is divided into (1) the removal of the follicle, and (2) the methods of producing phagocytosis, of which the most interesting is the use of the X-rays, as introduced by Mr. Mayou, and which have given such promising results. The book ends with a description of the histology and bacteriology of phlyctenular and vernal catarrh. The descriptions in the text are aided by numerous drawings of microscopical sections, and there are four excellent coloured plates which retain perfect clearness without loss of beauty. An appendix contains the principal literature in connection with the plasma cell.

P. H. A.

NOTES AND ECHOES.

News Items. THE *Société Française d'Ophthalmologie* will hold its annual congress from the 7th to the 10th of May, 1906, at the Hotel des Sociétés Savantes, 28, Rue Serpente, Paris. The proceedings commence at 9 a.m. (*très précises*) daily. The programme includes upwards of forty communications, some of which promise to be of exceptional interest. The Heidelberg Ophthalmological Society will meet on the 6th, 7th, and 8th of August next. The following programme has been arranged:—The Council will assemble at 6 p.m. on Sunday, August 5th, at Professor Leber's house. The scientific work of the congress commences on the 6th, at 9 a.m., in the Aula of the University, and the afternoon of that day will be devoted to demonstrations at the *Universitäts-Augenklinik*. The members of the Society will dine together at 6 p.m. in the Town Hall. The titles of communications must reach Professor A. Wagenmann, of Jena, before the 30th of June.

* * * *

Obituary.

THE deaths are announced of Dr. Louis Roche, oculist-in-chief to the Western Railway Company of France ; of Dr. Rudolf Schelske, once *dozent* of ophthalmology in Berlin, and director of the eye department of the Hamburg Hospital ; of Dr. Russell Murdoch, one of the founders of the Baltimore Eye, Ear, and Throat Hospital ; of Dr. Korn, a Berlin ophthalmic surgeon ; and last, but not least, of Dr. Theodor Gelpke, at Karlsruhe.

* * * *

**Hispano-American
Ophthalmological
Society.**

THE following gentlemen have been nominated honorary members of the Hispano-American Ophthalmological Society, namely, Professor Fuchs, Dr. E. Javal, and Mr. W. H. H. Jessop.

Appointments.

DR. J. W. STIRLING has been appointed to the chair of ophthalmology in McGill University in succession to the late Dr. Buller, whom he also succeeds as ophthalmic surgeon to the Royal Victoria Hospital, Montreal. Dr. Tooke has been appointed clinical assistant in ophthalmology to the latter institution. Dr. G. H. Mathewson has been nominated ophthalmic surgeon to the Montreal General Hospital, the post vacated by Dr. Stirling. Dr. G. Albertotti, of Modena, has been appointed professor of ophthalmology in the University of Padua. Dr. Pfalz has been nominated ophthalmologist to the new hospital in Düsseldorf. Professor E. Rollet has been nominated ophthalmologist to the municipal schools of Lyon, with Dr. Rossigneur as his assistant. Dr. D. Fiske has been appointed assistant professor of ophthalmology in the Chicago Polyclinic. We note with pleasure that our distinguished correspondent, Dr. Alberto Antonelli, of Paris, has assumed the co-editorship of Professor Parisotti's Journal, the *Rivista Italiana di Ottalmologia*, published at Rome. Another of our correspondents, Dr. A. Birch-Hirschfeld, has been appointed professor extraordinary of ophthalmology in Leipzig. Best congratulations to the new professor, whose scientific work is known the world over !

* * * *

**The
Sight-Testing
Bill.**

April 5th last.

THE Sight-Testing Bill, promoted by the Worshipful Company of Spectacle Makers, was introduced into the House of Lords on

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REGULATION OF COLOUR SIGNALS IN MARINE AND NAVAL SERVICE. *

BY

CHARLES A. OLIVER, A.M., M.D.,
PHILADELPHIA, PA., U.S.A.

WHEN it is considered that the most dangerous periods of time for the safety of lives and preservation of property at sea are those during which the proper recognition of colour signals constitutes the main, and at times, the only guide, for immediate action, the importance of the regulation of the choice of the colours used, the character of the materials employed, the size of the objects submitted for inspection, and the degree and the character of the visual acuity necessary for the determination of such colours, become evident.

So long as the high seas are necessarily free, harbours constantly changing in topography and oft-times difficult of access, and rivers and streams occupied in similar places by crafts of varied size and differing speeds, permanently fixed

*Read April, 1904, before the General Meeting of the American Philosophical Society.

objects, such as buoys and direction and danger indicators, must have colour differentiation employed as their main expressive feature, and colour-signs must be used to signify the position of large floating masses such as ships at anchor—just so long will it remain necessary continually to improve the colour material employed during actual service, and to render the apparatus which is to be used the most simple in construction that can be employed.

The well-filled harbour, with its changeable and constantly crossing paths containing traffic of every conceivable kind, the instability of the water mass itself, and the uncertain factors, such as fogs, mists, and snow, all show to what great degree of danger every moving object placed within such a situation is exposed. These conditions are far different in degrees of uncertainty from those that are seen in railway travel, in which the directions of movement are comparatively fixed, every change of direction well protected, and all of the trains carefully guarded by block systems.

The first question which arises is, can the system of signalling now in vogue in marine and naval service be so changed as to give better results with less liability to error ? †

Experiment and trial have shown that the visual apparatus which projects man's ordinary sensory powers possibly to the greatest distance into space must be the sensory organ which is preferably to be employed during the common routine of duty. Fixed or intentionally changed colour differentiation, being less unstable, and hence more certain for visual perception than mere recognition of form and objective motion, must be that which should be practically employed. As the result of experience, the coarse colours red, green, yellow, white, and blue are the ones which have been found to be the best for use during maritime signalling. These colours which are either placed in related situations upon moveable bodies (both while in motion and while at rest upon bodies of water), or which are situated in fixed positions, are made interchangeable and time-regulated. These colours, possessing definite colour-arrangement and colour-sequence, are intended either to express direction, signify protection, or designate code-signalling ; varieties of work—the correct, and at times, vital answers to which, are dependent solely upon colour recognition at distances which are comparable with safety to

†Better, less complicated, and hence cheaper and more easily applied adaptations of the Hertzian Ray apparatus, might accomplish the purpose in one way: but, unfortunately, unless such instrumentation is automatic in action, and unless its management and use can be kept constantly correct, this method must be considered in the light of the future.

large moving masses that often can be alone stopped slowly and gradually ; colours and relative positions which must be carefully chosen in regard to distances, situations, etc.

In the following paragraphs it has been endeavoured to express clearly and briefly the specific reasons for the improvements and changes suggested.

1. All of the colour tints to be used both by reflected light-stimuli and transmitted light-stimuli (day and night), during actual duty, should be officially proven copies of standards which have been carefully chosen in such a way that the signals may be uniform in tint in spite of variations in the character of the illuminants themselves. These selections should be made by an International Commission of normal-eyed colour experts. The colour-signals will then be universally alike, thus minimising danger from confusion due to false colour exposure.

These results can probably best be obtained by mathematically and analytically obtaining sample pigment hues both for diffuse reflected solar light, and diffuse refracted light, artificial light of specified kinds, character, degrees, and tints, which are equivalent to the midway bands for the colours used in the corresponding portions of the colour spectra obtained during exposure to the illuminant to be employed during actual service.

2. Each vessel of any importance should be provided with proportionately sized miniature samples of colour-boxes, colour-lamps, signal-colours, etc., or better, fitted with full-sized examples of the same, all carefully protected and boxed. These should be used as guides for the tinting of all material which employs colour as its basis for signalling of any kind. These materials should be certified by proper authority and should be obtainable at cost at licensed shops in every port of any consequence.

3. It should be a part of the official duty of every nation, state, and municipal government to see that the materials which are used for colour-signalling in any form, as well as the samples, are periodically examined as to cleanliness and stability of tint. Dated certificates, brief and to the point, with plain instructions for the easiest manufacture and the best plans for the preservation of the colour materials, together with clearly expressed rules for distances used, situations employed, and notes on any colour peculiarity of certain places, should be given ; these to be submitted for inspection on demand.

4. Every series of related colours used should be regulated both as to their comparative sizes of exposure, and the relative

degrees of colour saturation ; these should be duly proportionate in reference to equalities, distinctness, relationships and association of safe distances, and with regard to differences in degrees of penetrability. This can be accomplished either by having the colour values graded proportionately (a bad plan, since it tends to weaken the value of the stronger colours), or by making the colour-areas relative in size ; for example, to give a green signal light a similar degree of brightness, and hence the same relative distinctness (which governs all apparent distances, and in consequence, the relationships of the two colours) as red, it must either be five times more powerfully illuminated than the red or given five times more exposed superficial area ; so too with all other colour changes ; there is an idiocratic relationship. Clinical experiment has shown this, and laboratory research has confirmed the practical findings. The importance of this factor can hardly be over estimated when the series of individual signal colours are numerous in well-filled and busy harbours.

These plans once agreed upon by such an International Commission, all necessary data will soon become common property, and in consequence the system will be universally understood.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

EXTRACTION OF CATARACT UNDER VARIOUS CONSTITUTIONAL CONDITIONS.

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It may, perhaps, interest readers of THE OPHTHALMOSCOPE to glance at the following figures which exhibit some of the constitutional conditions of patients from whom cataracts have been removed by me at various times, and from which conclusions may perhaps be arrived at as to the expediency for undertaking an operation under similar conditions :—

(1) *Constitutional syphilis*.—Nineteen operations, with 18 recoveries ; or 94·73 %, with one failure. Some of these were aggravated cases in which the nasal and palate bones were perforated or destroyed.

(2) *Anæmia*.—Thirty-three cases, with 31 recoveries ; or 93·93 %, with two failures. In three of these cases there was splenic hypertrophy, and one in which the liver was also enlarged.

(3) *Valvular disease*.—Thirty-one operations, with 29 recoveries; or 93·55 %, with two failures. The greater number had aortic disease, next involvement of both aortic and mitral orifices, and a few of mitral valve disease.

(4) *Albuminuria*.—Fifteen cases, with 14 recoveries; or 93·33 %, and one failure. All these were chronic in their character. A few were treated with fuchsine, gr. j. twice daily, with regulation of diet prior to the operation.

(5) *Elephantiasis*.—Thirty cases, with 28 recoveries; or 93·33%, and two failures. In some cases—the majority—both lower extremities were affected, and in the remainder one lower extremity.

(6) *Diabetes*.—Thirty-eight cases, with 33 recoveries; or 86·84 %, and five failures. The specific gravity of the urine ranged from 1024 to 1045. In several cases the patient was treated with combinations of iron, ergot, nux vomica, and codeia, and regulation of diet previous to any operative procedure.

(7) *Varicose veins*.—Six cases, all of which were successful. The enlarged veins were confined to one or both lower extremities.

(8) *Leprosy*.—Four cases, with no failures. These were aggravated examples of the disease. In one case there was loss of the terminal phalanges of the fingers and toes with claw-like contraction of the fingers.

(9) *Opium-Eaters*.—Three cases, with no failure. In one case, aged 56, the daily consumption was 32 grains, and the subject began the habit at the age of 16. In the second case, aged 50, the daily quantity consumed was 24 grains. In the third case, aged 52, no information could be obtained of the daily consumption. During their stay in hospital the drug was continued, but in smaller doses. All these subjects were Mohammedans.

(10) *Ovarian disease*.—One case, which was successful; the tumour was of very large dimensions.

(11) *Pregnancy*.—Two cases of pregnancy, at about the seventh month, in patients, aged 20 and 18 years respectively.

A CLINICAL NOTE UPON CLEFTS IN DESCEMET'S MEMBRANE.

BY

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The two following cases are published as examples of a condition to which some attention has recently been paid in

Germany, namely, fissures in Descemet's membrane of mechanical production. These defects have been found in several conditions, of which all possess one feature in common—distension of the eyeball. Thus, they have been observed in buphtalmos (Haab, Reis,¹ Axenfeld,² and Seefelder³); in keratoconus (Axenfeld⁴); in intraocular tumours (De Gama Pinto, Becker, and Wintersteiner⁴); and, lastly, in progressive myopia (Fleischer⁵). That the curious little lines depicted in the accompanying illustrations really represent so many fissures in Descemet's membrane is proved by the histological examinations carried out in clinically similar cases by Reis¹ and by Seefelder.³

CASE NO. I.—*Numerous clefts in Descemet's membrane in a girl of 21 years, suffering from a high degree of compound myopic astigmatism with oblique meridians.**

Ellen L——, 21 years, was admitted to the Royal Eye Hospital, Southwark, as an out-patient, under Mr. R. W. Doyne,



FIG. I.

on March 9th, 1906. Her right eye (which had sustained no injury) has been defective as regards sight ever since the patient remembers.

Present State.—R.V. Fingers at 1 metre. T.n. L.V. 6/18, not improved by spherical lenses. T.n. R.E.—On careful examination with focal illumination and a Berger's binocular loupe, some indication may be obtained of the existence of a series of fine, greyish lines, lying deep in the cornea. On using a convex 20 D. lens behind the smaller ophthalmoscopic mirror, and, still better, on examining the eye with the Zeiss corneal microscope, about a dozen double-contoured greyish lines may be recognised as lying somewhat obliquely in the cornea, more especially in its nasal half (*see figure 1*). They run more or less parallel with one another, and in their general direction form an angle of about

*Patient shown at a meeting of the Ophthalmological Society on May 3rd, 1906.

15° inwards with the vertical meridian of the cornea. They resemble, as it were, so many cracks in ice or flaws in glass. None of the lines extend the entire length of the cornea, and most of them present pointed ends. They appear to lie at or near the posterior surface of the cornea, the anterior surface of which shows no obvious changes. The refraction of the eye, estimated under atropine, is—10.50 D. sph., with—12.50 D. cyl. axis 105°. This correction, nevertheless, does not improve sight beyond fingers at 1 metre. A myopic crescent is present on the temporal side of the optic papilla.

L. E. — No corneal changes comparable with those present in the case of the right eye. Under atropine, V. 6/24 with + 1.25 D. sph., and + 1.75 D. cyl. axis 115° 6/12.



FIG. 2.

CASE NO. II.—*Fissures in Descemet's membrane in both eyes of a child affected with buphthalmos, for the relief of which large iridectomies had been performed.*

Lily W—, aged six months, attended the North-Eastern Hospital for Children on October 24th, 1900, when a diagnosis of interstitial keratitis was made, on account of the cloudy corneæ and of a history pointing to syphilis. I saw the child for the first time a week later, and found a "snuffling" infant, who

exhibited traces of a recent ulcerous eruption about the vulva and anus. The eyes showed some muco-purulent discharge, doubtless due to a syphilitic conjunctivitis, such as I have not infrequently noted in babies suffering from congenital syphilis. The eyeballs, however, were obviously large, the transverse diameter of the corneæ measuring 14mm. The corneæ were globular, with a good deal of haze, the latter taking the form of a Y-shaped figure whose prongs were occupied by faint punctate opacities. The optic discs were cupped, and tension was raised; the anterior chambers were deep. According to the mother's statement, the baby noticed things as she should do. There was obvious photophobia. Mercurials were given internally and the eyes were treated with myotics until January 27th, 1901, when a



FIG. 3.

large upward iridectomy was made in the right eye, an operation repeated on the other eye several months later. The result of the operations appeared to be good, since the eyeballs did not enlarge further, and the child retained enough sight to get about in the ordinary way.

The general condition of the eyes on April 5th, 1906, is shown in figure 2. Upon that date the lines indicative of clefts in Descemet's membrane were for the first time looked for, and found. They were better marked in the right than in the left, cornea. As will be evident from an inspection of figure 3, they assumed the shape of double-contoured lines, few in number, scattered irregularly about the cornea, and forming, roughly, segments of circles.

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TRANSLATION.

ON THE RELATIONS BETWEEN CORNEAL AND TOTAL ASTIGMATISM.*

(*Clinical Ophthalmometry and Optometry.*)

BY

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[Translation by ERNEST THOMSON, M.A., M.D.]

The instrument of Javal-Schiötz, or any other modern ophthalmometer constructed on the same principles, is at the present time declared to be most useful, not to say indispensable, by all oculists who desire to practise refraction properly. What seems to be less fully imprinted in the minds of young practitioners is the necessity of remembering the relations between indications furnished by the ophthalmometer in regard to corneal astigmatism, and those furnished by skiascopy and subjective examination, before the correcting glasses can be prescribed.

These relations are indicated, it is true, by Javal in the classical volume "*Mémoires d'Ophthalmométrie*" (Paris, 1890), and by Tscherning in his "*Optique physiologique*" (Paris, 1898). There is, besides, a fairly full literature on the form and the functions of the posterior surface of the cornea and of the two surfaces of the lens ; on the influence of paracentral zones of the cornea during vision with a greater or less degree of pupil dilatation ; on the varying value of the correcting glass according to its form and its distance from the corneal surface, etc., questions all bearing upon that of the relations between ophthalmometric astigmatism and optometric or total astigmatism. But it is not our intention to give here either a systematic account of the argument or a criticism of publications prior to our own. We desire to confine ourselves to the statement of facts which, from the practical point of view, allow us after a dozen years of practice with the ophthalmometer, and after a number of complete ophthalmometric observations well over a thousand, to establish the rules which govern the relations between the ophthalmometric formula and that of the correcting glass.

To render our task simpler we must consider astigmatism from the standpoint of its amount (dioptries), and from that of orientation (direct, inverse, oblique, bi-oblique).

We would remark, in the first place, that our method is to

*Translated (with permission of the author) from *Archives d'ophthalmologie*, mars, 1906.

commence every estimation of refraction with the ophthalmometer, to pass on to a brief skiascopic test, next, to complete the subjective examination, returning, finally, to skiascopy, if necessary, for the final control of the lenses to be prescribed. The advantages of proceeding in this manner are numerous and real. The ophthalmometer warns us at once if cylinders are required, and informs us as to their strength and orientation. Skiascopy informs us of the lenses to employ—concave or convex. At the very commencement, therefore, the subjective examination acquires elements of certainty, *rules of probability*, which shorten it greatly, and enable us to proceed in an unhesitating manner. It is about these rules guiding the subjective examination on the basis of the ophthalmometric formula which we are going to speak.

I.—PHYSIOLOGICAL CORNEAL ASTIGMATISM.

The ophthalmometric formula, according to Javal, of the physiological cornea is $0^\circ \pm 0.75$ (direct astigmatism 0.75 D.).

When the ophthalmometer gives these figures, it is almost certain that on subjective examination we shall find no trace of astigmatism, and that we shall be able to do without a trial of cylinders. Exceptions to this first fundamental rule are exceedingly rare. When it seems to be at fault, further examination leads one to recognise that the ophthalmometric formula ought to have been read as $0^\circ \pm 0.50$ or $0^\circ \pm 1$. In order to avoid these little errors of observation we have as a control the refractive numbers of the two principal meridians, which should complete the ophthalmometric formula, and serve to confirm the number in dioptres directly read off after superposition of the mires. Suppose instead of having a formula $0^\circ \pm 0.75$ ($40, 40.75$) where the superposition of the mires and the difference of the figures read on the arc at the moment of contact of the mires in the two principal meridians are in perfect agreement, we have, for example, $0^\circ \pm 0.75$ ($40, 41$): The discrepancy between the figure 0.75 and the difference $40 - 41 = 1$ will give us a corneal astigmatism rather more than physiological. On the other hand, corneal astigmatism would be slightly less than physiological if the formula were $0^\circ \pm 0.75$ ($40, 40.5$). At any rate the cylinders to try on subjective examination or skiascopy would not be higher in these cases than 0.25 D. to 0.50 D., in order to correct a trifling total astigmatism, direct or inverse.

I do not find among my notes a single example of oblique total astigmatism in a case having the *exact* physiological ophthalmometric formula. But one must beware of formulæ which should have been written, for example 0° , (10°) ± 0.75 in

place of $0^\circ \pm 0.75$; formulæ which would almost come into the category of bi-oblique astigmatism (see further on). It is easy, then, to find a slight total astigmatism (0.5 D. to 0.75 D.) and slightly oblique.

II.—NO CORNEAL ASTIGMATISM.

These cases merit consideration by themselves; for although relatively infrequent, they furnish us with obvious proof of the rule which governs almost all the relations between the form of the ophthalmometric zone of the anterior corneal surface and the total astigmatism of the eye.

In fact, when the ophthalmometer shows us $? \pm 0$ (that is to say, a neutral angular number, and a dioptric zero according to the mires, which maintains the level and contact in all meridians, we shall find on subjective examination an inverse astigmatism of 0.5 D., or more often 0.75 D.).

Exceptions to this rule are very rare, and verification shows almost always that a slight obliquity or bi-obliquity of the ophthalmometric astigmatism has been neglected, and that the formula should rather have been, for example, $15^\circ \pm 0.25$ (42, 42.25) or 0° (15°) ± 0.25 , and not exactly $? \pm 0$ (42). The cylinders to try, in a case of *nil* corneal astigmatism will be in every case 0.5 D. to 1 D. in order to correct a total astigmatism, inverse or very slightly oblique from the inverse.

III.—LOW CORNEAL ASTIGMATISM.

In this group we have to consider the formula types $0^\circ \pm 0.25$ to $0^\circ \pm 0.5$, and those of the type $90^\circ \pm 0.25$ to $90^\circ \pm 2$; that is to say, on the one hand, *direct corneal astigmatism less than the physiological*, and, on the other hand, *low inverse corneal astigmatism*.

(a) In the first class of cases the *probable cylinder* will be 0.5 D. or 0.25 D., concave vertical, or convex horizontal, correcting a slight subjective inverse astigmatism, due to deficiency of corneal astigmatism.

(b) In the other cases the probable cylinder will be 1 D. to 3 D. in the meridians above-mentioned, in order to correct the sum of the subjective astigmatism (0.75) and of the corneal astigmatism (0.25 to 2), both inverse.

IV.—MEDIUM AND HIGH DIRECT CORNEAL ASTIGMATISM.

These cases are the most frequent in practice, and they lend themselves best to rapid and perfect subjective correction, giving

complete satisfaction to patient and oculist. With the formulæ $0^\circ \pm 1$ to $0^\circ \pm 3$ we find almost constantly that total astigmatism = corneal astigmatism less 0.75 D. Commencing with $0^\circ \pm 3.5$ and proportionally as the dioptric strength increases, the total astigmatism will have a tendency to equal, and even to exceed, the corneal by 0.5 D. to 0.75 D. For instance, with a formula $0^\circ \pm 3.5$ we shall probably still find As. t. = 2.75 ($3.5 - 0.75$) or = 3 ; but, with a formula $0^\circ \pm 4$, we shall find As. t. = 4 or 4.25 ; and with $0^\circ \pm 6$ almost certainly As. t. = 6.5 .

Given, then, an ophthalmometric formula $0^\circ \pm .75$ to $0^\circ \pm 6$, all we have to do is to place in the trial frame a cylinder (concave horizontal or convex vertical, according to the nature of the ametropia and of the associated spherical lens) of 0.75 below the ophthalmometric number, and then to try rapidly whether increasing or diminishing the cylindrical correction by 0.25 , 0.5 , or 0.75 further improves the visual acuity by the test-types. Long ago I gave up the use, as a general rule, of the fan and of the clock-face, the reading of optotypes being quite sufficient, and avoiding all loss of time.

V.—MEDIUM AND HIGH INVERSE CORNEAL ASTIGMATISM.

For the formulæ of the type $90^\circ \pm 1$ to $90^\circ \pm 2$ the rule is the same as that for low inverse corneal astigmatism, *viz.*: that As. t. = As. c. + 0.75 .

Given, then, an ophthalmometric formula $? \pm 0$ to $90^\circ \pm 2$ it is sufficient to place in the trial frame the cylinder (concave vertical or convex horizontal) of 0.75 above the corneal number, and to try rapidly whether increase or diminution by a cylinder of 0.25 D. or 0.5 D. further improves the visual acuity.

One rarely meets in *healthy* eyes with an inverse corneal astigmatism more than 2 D.; but in such a case (for instance formulæ $90^\circ \pm 2.50$ to $+ 3.5$), and in the cases of regular astigmatism consecutive to iridectomy or sclerotomy (median superior), the rule which we have just given still holds good.

In inverse or slightly oblique astigmatism following cataract extraction, if the astigmatism is regular (uncomplicated operation, perfectly consolidated cicatrisation for three months or longer), it is usual to find As. t. = As. c.; but in several cases I have found the cylinder preferred to be lower by 0.5 or 0.75 in comparison with the ophthalmometric number. It is in these cases especially that one must pay particular attention to the kind of cylinder, to its distance from the corneal surface as well as from that of the strong convex glass with which it is associated. Not uncommonly post-operative astigmatism,

without being frankly irregular, belongs to the class of bi-oblique astigmatism ; in this case the dioptric amount of the total astigmatism is seen to be identical with, or slightly lower than that of the ophthalmometric astigmatism, but the orientation will be variable (see further on).

In order to sum up the preceding five paragraphs in a synoptic table we have made out the following scheme which seems to be more complete and to conform better to rules than that given by Tscherning on page 118 of his *Optique physiologique*. It is worth remarking that our figures are for the most part intermediate between those given by Javal and by Pflüger, and that, apart from exceptional cases, we employ concave cylinders for subjective examination and prescription of glasses.

A. Coronal (ophthal- mometrical astigmatism.)	Direct mini- mum lower than the physiological.				Direct above the physiological.						
	Inverse.	Nil. physiological.	Direct physio- logical.		1	2	3	3'5	4	5	6
3 2 1 0'5 0'25	0	0'25	0'5	0'75							
4 3 1'75 1'25 1	0'75	0'5	0'25	0	0'25	1'25	2'5	3'25	4 5.25	6.5	
Inverse.				Nil.				Direct.			

VI.—OBLIQUE AND BI-OBLIQUE ASTIGMATISM.

From the standpoint of clinical ophthalmometry all astigmatism is *oblique* when the ophthalmometric formula contains an angular number other than 0° or 90° . When the angular number is double we have *bi-oblique astigmatism* (e.g., the formula $15^\circ (30^\circ) \pm 1.50$) ; that is to say, the levelling of the proving lines of the mires is obtained in two principal meridians which are not quite perpendicular to each other. This astigmatism could be more exactly termed *abnormal* (one meridian not *normal* to the other), all the more since there is not *double obliquity* in such formulæ as $0^\circ (165^\circ) \pm 1$, or $90^\circ (105^\circ) \pm 1$, formulæ which enter, none the less, into the category of which we are speaking. But the word *abnormal* being liable to lead to confusion, we have preferred to retain the term *bi-oblique astigmatism*, created, we believe, by Roure, of Valence (France). *Bi-oblique* should, then, make one think of one principal meridian oblique to the other.

(a) In *oblique astigmatism* the rules stated heretofore undergo variations, and, in general, are subject to more numerous exceptions. The first fact to remember is that the angular number of the ophthalmometric formula remains invariable, in most cases, in the optometric formula ; so that in using concave

cylinders and placing them in a trial frame graduated in accordance with the disc of the ophthalmometer, it is possible to place the cylinder from the commencement of the subjective examination in the meridian indicated by the ophthalmometer. Occasionally the patient will prefer a position differing by 5° to 10° one way or the other from the ophthalmometric finding.

This difference is found more often in oblique astigmatism which approaches the *diagonal* (see further on). With formulae such for instance as $50^{\circ} \pm 1.5$ or $145^{\circ} \pm 2$, the angular number of the total correction, preferred at the subjective examination, and recognised as exact by skiascopy, is often transformed into 45° or 135° ; as if the total astigmatism had a tendency to be placed exactly in the diagonal when the corneal astigmatism is only slightly removed therefrom.

Frequently the patient hesitates in his answers, and then skiascopy serves to decide the question, as will be shown further on.

In respect of dioptric strength, oblique corneal astigmatism does not behave like the physiological, either direct low or direct moderate, which both represent a simple exaggeration of physiological astigmatism. It behaves rather like inverse astigmatism when the obliquity approaches that of the latter; that is, for formulae of the type $75^{\circ} \pm 1$ or $150^{\circ} \pm 1$ for example, we shall easily find total astigmatism of 0.5 to 0.75 more than the corneal. In cases where the obliquity, on the other hand, rather approaches direct astigmatism (*e.g.*, in the formulae $20^{\circ} \pm 1$, or $160^{\circ} \pm 1$, or near the diagonal, such as $30^{\circ} \pm 1$ or $60^{\circ} \pm 1$ or even $120^{\circ} \pm 1$ or $160^{\circ} \pm 1$), the total astigmatism will generally be equal to the corneal.

Lastly, in exactly diagonal astigmatism (formulae with angular number 45° or 135°), we shall find a little more often the total astigmatism slightly lower than the corneal; less rarely they are equal.

The practical application of these rules is, that in oblique astigmatism in general it is advisable to commence the subjective examination with the correction, angular and dioptric, indicated by the ophthalmometric formula, then to try neighbouring meridians, rotating the lens 5° to 10° in either direction, and, finally, to increase or diminish the cylinder by adding, for instance, $+ 0.50$ or $- 0.50$, so as to be certain of reaching the maximum acuity.

(b) In *bi-oblique astigmatism* which of the two angular numbers of the ophthalmometric formula are we to take first in the optometric examination? It is impossible to establish a rule, for the cases differ too much among themselves, according to the

orientation, the degree of bi-obliquity, the amount of the astigmatism, the relations between the ametropia of the two eyes, etc.

We may make one remark, viz., that when the obliquity of one meridian is slight in relation to the other (5° to 15°) and especially when one of the angular numbers of the ophthalmometric formula is 0° or 90° it will probably be possible to obtain right away a remarkable amelioration of the acuity by means of a correcting cylinder equal or almost equal to the dioptres of corneal astigmatism, whatever may be the definite meridian preferred at the subjective examination. When, on the other hand, the bi-obliquity, so to speak, is considerable (15° to 30°) as happens in astigmatism complicated with irregularity by peripheral leucoma or any other acquired pathological factor, one must expect much greater hesitation in the replies of the patient and a much less satisfactory result.

The orientation of the cylinder which is preferred will sometimes be different from that indicated by the two figures of the ophthalmometric formula, although included between the two and nearer to one or the other. This happens, for example, in the formulæ types 35° (50°) ± 2 , or 140° (125°), which readily give as the angular numbers of the total correction, 45° or 135° on account of the tendency, to which we have already referred, of subjective astigmatism to turn out exactly diagonal whenever the corneal astigmatism is only a little off the diagonal.

Cases of bi-oblique astigmatism with a greater or less degree of separation between the two angular numbers (e.g., a formula type 25° (50°) ± 3) represent transition states towards astigmatism which is frankly irregular (cicatricial) or towards astigmatism connected with decentration of the cornea. Although these varieties of astigmatism may not be capable of correction by lenses, it is not unusual to obtain, thanks entirely to the ophthalmometer, an amelioration of the acuity by the correction of a relatively regular portion of the astigmatism. This amelioration may amount to 0.1 , up to 0.3 , 0.4 , or even 0.5 . This is a valuable result for the patient, as one can readily understand, especially for distant vision and when the affection is binocular.

It is particularly in oblique and bi-oblique astigmatism that skiascopy renders the greatest service in the precise control of the correction found by ophthalmometry and subjective examination. In these cases also it is important to perform the skiascopy with a source of light having a square shape.*

*In Volume III of the recently published *Encyclopédie française d'ophthalmologie*, on page 730, Sulzer writes; "Cuignet, Parent, and Chibret have shown that a square source of light (a square hole cut out of the chimney of an opaque

The luminous square with sides of 1cm. being fixed in the normal, the observer with his right hand rotates the plane mirror in the horizontal and vertical meridians (parallel with the sides of the square), while his left hand moves the lens in the trial frame one way or the other.

The shadow, or to speak more accurately, the *border of the illuminated field* which one moves about in the *skiascopic field of observation*, will be seen to advance or retire with a degree of regularity and of parallelism to the border of the luminous square which are the more perfect the more the cylindrical lens is oriented so as best to correct the total astigmatism. Complete regularity of skiascopic phenomena cannot be obtained in cases complicated by considerable bi-obliquity of the meridians, as we said above, and still less in cases of cicatrical astigmatism corneal decentration, keratoconus, etc. But, when one is accustomed to the practice of skiascopy, it is possible to exclude *irregular phenomena* due to such corneal complications, and to recognise, in spite of irregularity, in spite of "scissors movement" of the shadow, etc., a point at which a given orientation of the cylinder will give the least imperfect correction. In many cases this relative correction will be more useful and acceptable to the patient than the perfect correction indicated in a case of regular astigmatism, and increasing, let us suppose, an acuity of 0·7 or 0·8 up to unity.

VII.

We must next discuss *the influence of the binocular function on the relations between corneal and total astigmatism*; and study in what way the two ophthalmometric formulæ, right and left in the same individual, are able to modify our *rules of probability* in the correction of the total astigmatism when each eye is

lamp) increases the precision of skiascopy, especially in the determination of astigmatism (see this chapter)." This assertion is quite inaccurate, and the chapter to which the author refers contains nothing which could justify it. Cuignet, Parent, Chibret, and others have shewn, be it understood, the distortion of different geometric figures, including the square, on the fundus of the astigmatic eye. But the *clinical application* of these facts, by *skiascopic examination with a square source of light* was first proposed by us in 1898, at the Congress of the *Société française d'ophthalmologie*. Volume XVI of the *Bulletins*, pp. 296 to 303, presents our communication (*La forme de la source lumineuse—carré lumineux—pour la skiascopie; astigmométrie et aberrométrie objectives de l'œil*), followed by the discussion in which M. Chibret and M. Parent took part. Neither of them claimed priority for our proposal, but both agreed in styling as ingenious the apparatus which we showed (a *jointed light apparatus* capable of adjustment to any lamp, and having an opaque plaque with a square window, made by Bowzendorffer). Reference may be made to our articles in the *Bulletins* quoted (Vol. XVI and Vol XIV) for the description of the phenomena which make our *skiascopic astigmometry by the luminous square* the best objective method for the control of correcting lenses.

separately considered, and in the precise correction performed when both eyes are used simultaneously.

This study would lead us far into the region of spherical and astigmatic anisometropia. We shall be content to mention the *law of the tendency towards symmetry* as regards the orientation of cylinders, and the *law of the tendency to equality of the algebraic sums*, as regards the dioptric strength and the signs of the correcting lenses of each eye.

The first of these laws is clear enough by its mere statement, and we shall give merely one example. Take the formulæ L.E. $135^\circ \pm 2$; R.E. $55^\circ \pm 1.5$. In all probability the subjective examination in this case would give us the same angular number 135° for the left eye, but 45° in place of 55° for the right eye. Thus symmetry (diagonal) is seen to be re-established.

The second law implicates both the cylindrical and the spherical correction, since it is the algebraic sum (taking into account the plus and minus signs) of the two elements of the combined lens for each eye which has a tendency to equalisation. If, for instance, the ophthalmometer gave us L.E. $0^\circ \pm 1.5$, R.E. $0^\circ \pm 2$, and if in the two eyes the horizontal meridian were hypermetropic 2 D., we should probably have as the correcting lens for each eye separately: L. $0^\circ - 0.75 + 2$; R. $0^\circ - 1.25 + 2$. But on going on with the subjective examination, and especially during binocular fixation, it would be still more probably found that the correcting lenses definitely preferred would be: L. $0^\circ - 0.75 + 2$; R. $0^\circ - 1$ (or even $- 0.75 + 2$), thus coming as near as possible to equality of the algebraic sums ($- 0.75 + 2 = + 1.25$).

In other cases, where the difference between the astigmatism of the two eyes is relatively considerable, it is the spherical ametropia which tends to establish equilibrium. For instance, formulæ L. $0^\circ - 1.5 + 3$; R. $0^\circ - 3 + 5$ are readily transformed in the precise subjective examination, when the eyes are working together, into L. $0^\circ - 1.5 + 3$; R. $0^\circ - 3 + 4.5$ (isometropic algebraic sum $+ 1.5$), or even into $0^\circ - 1.5 + 3.5$; $0^\circ - 3 + 5$.

When cognisant of these *rules of probability*, we shall know how rapidly to perfect the choice of lenses, should the patient not admit complete satisfaction, with, for example, a given anisometric binocular correction. In the case of the formulæ just given, it would suffice, in fact, to place before one or other of the correcting lenses, during binocular fixation of the optotypes, a lens of $- 0.5$ or $+ 0.5$ alternately, in order to get a correction which is definitely preferred.

With a knowledge of the relations which have been set forth in this article, the ophthalmometric examination can be made to be really the most important element in clinical ophthalmometry.

The explanation of rules which we wished to elucidate could not but be tiresome ; for this we must apologise. We have tried to make these paragraphs less wearisome by sparing the reader percentages and statistical tables based on thousands, and most of our ophthalmometric and optometric notes belonging to this study. We have simply stated the conclusions with the sincerity that their interest, in our eyes, seemed to warrant.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—MYOPIA.

- (1) Heine.—On excessive myopia. (Ueber übermässige Myopie.) *Centralbl. f. prakt. Augenheilkunde*, September, 1904.
- (2) Lacaussade.—Practical considerations on myopia. (Considérations pratiques sur la myopie.) *L'Ophtalmologie Provinciale*, T. II, avril et mai, 1905.
- (3) Gendron.—On the full correction of myopia. (À propos de la correction totale de la myopie.) *L'Ophtalmologie Provinciale*, juin, 1905.
- (4) Frenkel.—A study of traumatic myopia. (Étude sur les myopies traumatiques.) *Ann. d'oculistique*, T. CXXXIV, p. 1, juillet, 1905.
- (5) Stilling, J.—On the anatomy of myopic eyes. (Zur Anatomie des myopischen Auges.) *Zeitschr. f. Augenh.*, Juli, 1905.
- (6) Hosch, G.—On Prof. Lange's new theory upon progressive myopia. (Zur neuesten Theorie der progressive Kurzsichtigkeit von Professor Lange.) *Von Graefe's Archiv f. Ophthalmologie*, 61, i., August 1st, 1905.
- (7) Elschnig, A.—The elastic fibres in the sclera of the myopic eyes. (Die elastischen Fasern in der Sclera myopischer Augen.) *Ibidem*.
- (8) Hansell, Howard F.—Some lesions of high myopia clinically considered. *Ophthalmology*, July, 1905.

- (9) Augiéras.—The correction of myopia. (*La correction de la myopie.*) *L'Ophthalmologie Provinciale*, II, 78, August, 1905.
- (10) Burgeois, A. (Reims).—Report on the total correction of myopia. (*Rapporto sulla correzione totale della Miopia.*) *Congresso della Societa Francese d' Ottamologia*, 1905, e *La Clinica Oculistica*, Agosto, 1905.
- (11) Vacher and Baillart.—A second communication on the influence of the full correction of myopia, on its progress, and on detachment of the retina. (*Deuxième note sur l'influence de la correction totale de la myopie, sur sa progression, et sur le décollement de la rétine.*) *Ann. d'oculistique*, T. CXXXIV, p. 330, novembre, 1905.
- (12) Bourdeaux, Bruno.—The convergent strabismus of myopes : its cure by a new model of diploscope. (*La strabisme convergent des myopes : sa cure par un nouveau modèle de diploscope.*) *La Clinique ophthalmologique*, 25 janvier, 1906.
- (13) Fleischer, Bruno.—Ruptures of Descemet's membrane in myopia. (*Risse der Descemetschen Membrane bei Myopie.*) *Klin. Monatsbl. f. Augenheilkunde*, Januar, 1906.
- (14) Stilling, J.—The basis of my theory of myopia. (*Die Grundlage meiner Kurzsichtigkeits-Lehre.*) *Zeitschr. f. Augenh.*, Januar, 1906.

(1) Heine discusses several cases of high myopia in connection with the operation for removal of the lens, and he arrives at the following indications :—(1st) An "only eye" with a clear lens should not be operated on—of course, if the lens become opaque the operation must be done; (2nd) If the lenses become opaque in both highly myopic eyes one must operate, and it is better to operate first on that eye in which the condition of the retina leads one to expect the better result. The operation should be done if both eyes are highly myopic, the lower limit of which may be taken at from 18 D. to 20 D., when both have relatively good visual acuity, and when strong lenses are not worn with comfort. The author notes that none of the cases of high myopia have ever constantly worn a correcting glass, which he believes would have prevented the development of high myopia in many cases.

(2) Lacaussade devotes two articles to refuting the popular fallacy that short-sighted eyes are the best eyes.

R. J. COULTER.

(3) Gendron considers that the full correction of myopia is useful with a view to lessening efforts of convergence by placing

the punctum remotum further from the eyes, and thus forcing the patient to work at a distance of at least 33 c.m., but that it is often badly borne especially in high myopia in which it is not without risk to the eyes, while in low grades (under 1.5D.) the object aimed at can be attained without the use of any glasses.

R. J. COULTER.

(4) **Frenkel** gives a table containing particulars of 47 cases (including two of his own), in which the occurrence of traumatic myopia has been recorded. He divides these into the following four classes : (a) due to spasm of accommodation, 8 cases, M averaging 4.5D., practically always cured either spontaneously or by atropine ; (b) due to relaxation of the zonule, 15 cases, M. averaging 3.7. D., sometimes cured, eserine indicated ; (c) due to luxation or subluxation of the lens, 11 cases, M. averaging 5.4 D., no cure ; (d) due to elongation of the eyeball, 5 cases, M. averaging 15.5 D., no cure. He finds that the condition occurs 11 times in males for every once in a female, is most frequent between the ages of 10 and 40 years, is equally common in either eye, and usually results from a more or less violent direct injury. Numerous complications have been recorded, all such as might be expected to result from a severe contusion of the eye.

R. J. COULTER.

(5) **Stilling** has measured many eyes with regard to their various diameters, and also the thickness of the sclerotic coat. He comes to the conclusion that myopic eyes follow the general rule, the sclera being thickest around the entrance of the optic nerve, and becoming gradually thinner towards the equator ; and, further, that the thickness of the sclera in myopic eyes does not differ from that found in normal or hypermetropic eyes ; and that the variations in the various diameters, especially the antero-posterior ones in myopic eyes, are quite within normal limits ; and a myopic eye of 4 D. may actually be shorter than a hypermetropic one of 2 D. The difference he explains as being due to a difference in the radius of curvature of the cornea.

Speaking generally, big eyes tend to become myopic, and small eyes to escape it. In the great majority of myopic eyes a posterior staphyloma was conspicuous by its absence.

A. LEVY.

(6 and 7) Both papers deal with and contradict Lange's theory as to the causation of progressive myopia. Lange seeks the source of progressive myopia in congenital and hereditary deficiency of the elastic fibres of the sclera. But in examining six eyes with progressive, and one with slight, myopia, **Hosch** could not find any abnormality whatever in appearance or development of these fibres. **Elschnig** arrives at practically the same results. He has subjected a great number of eyes, myopic

and otherwise, to a most searching examination with the purpose of investigating the exact mode of distribution of the elastic fibres in the sclera, especially at the posterior pole. He finds the orcein, and the other methods of staining, often disappointing, which seems to account for the contradictory statements on the subject. In the main, two types, the Camellar and the "straw mat type" are met with, but both forms gradually merge into another. There is certainly no type characteristic of the myopic sclera, some of the thinnest eyeballs displaying a quite remarkably dense net of elastic fibres. **Elschnig** repeats his statement, that the sclera of the myopic eye is within the ectatic part much thinner than would correspond to a mere bulging of an otherwise normally thick membrane.

R. GRUBER.

(8) **Hansell** believes that the principal treatment of these conditions consists in the avoidance, as far as practical, of near work and excessive convergence, with the correction by lenses of the myopia and associated astigmatism. He says that while differences of opinion exist as to the judicial correction of the myopia, there are none as to the astigmatism ; and asks, shall the myopia be fully corrected or only partially ? He believes that after the age of presbyopia no difficulty arises, but desires to know whether the young myope, say of eight or more dioptries, should wear full correction for far and near, or for far only, or not at all ? Without entering into the discussion, his own view, briefly expressed, is that the patient should wear as near full correction as practicable for distance, and never for near.

C. A. O.

(9) **Augiéras** considers that the full correction of myopia is not always without risk, and that every case should be judged on its own merits, and treated according to the conditions which are found present in it on careful examination.

He lays down the following general rules : In low myopia (under 3 D.) full correction is borne well by adults, except presbyopes, and by children, but the latter should be taught not to hold their work closer than 30 cm. In medium myopia (3—8 D.) full correction is borne well by adults for distance, while for near work they may prefer full, partial, or no correction, but children should be under-corrected by 1 to 4 D. until they have learned to work at 30 cm. In high myopia (over 8 D.) glasses should be ordered, with which the patient can read at 20—35 cm. In some cases this one pair will be enough, but in others a second stronger pair is required for distance which ought, however, still to under-correct the myopia. In progressive myopia Augiéras has now given full correction, and has seen bad effects following the use of atropine. In such

cases he prescribes at first complete cessation of near work, myotics and general treatment, and, later, incomplete correction sufficient to allow near vision without accommodation, and with the least possible convergence.

R. J. COULTER.

(10) It has long been proposed to correct myopia totally ; in other words, to prescribe the same number of glasses for reading as for distance, thus rendering the eye emmetropic and putting the accommodation into play for the various distances.

It was Förster who first put this theory into practice ; but it is in the most part due to Sattler (who has followed this practice for years) that specialists are beginning to adopt this kind of treatment for myopia. Bourgeois, in the Congress held at Paris, proved, by means of a very accurate report, the benefit arising from the total correction of myopia, provided, however, it be adopted from infancy, since in the adult this sort of correction is not practicable. It was formerly maintained that the efforts of accommodation were the actual cause of myopia, and the progress or increase of the same was attributed solely to these efforts. This, however, is not the case, as serious consideration into the matter and daily experience have proved :—

(1) That the predisposing cause is to be found in heredity ; in fact the myope, although he does not inherit myopia directly, possesses a structure of the eye, which allows lengthening of the antero-posterior axis, *viz.* : diminished resistance of the sclerotic in the posterior segment, easily compressible vorticose veins, and marked deepness of the orbits.

(2) That the determining cause rests in the excessive and continued efforts of convergence, due to the application of the eyes in embroidery, reading, etc.

Hess has proved by means of very accurate experiments that the efforts of accommodation do not elevate the tension of the vitreous, and could not therefore bring on myopia or in any way increase it, if already present. The best means, then, in our power for preventing or arresting myopia in the predisposed, lies in our re-establishing the parallelism between convergence and accommodation ; that is, putting myopic eyes on the same footing as emmetropic ones, by correcting all the existing myopia, and so causing the patient to accommodate and consequently to converge.

Bourgeois insists that the glasses must be accurately chosen by means of retinoscopy or even by trial ; that they must be provided as early in life as possible ; that the object must be kept at a minimum distance of 30 centimetres from the eyes ; that the head must be kept in the erect position ; and that the light must be sufficient. In cases of adults or in high myopia (6 to 12 D.), the correction must be gradual, commencing with a

weak glass and increasing its strength as the bearing power of each individual case permits. From the above it clearly follows that the use of atropine as a curative means, based on the false precept that accommodation was the cause of myopia, is now-a-days to be considered as absolutely irrational.

CHARLES MANCHÉ.

(11) **Vacher** and **Baillart** are still of the opinion expressed in a communication to the *Société française d'ophtalmologie* in 1902, that full correction is indicated in all cases of myopia in young patients not associated with lesions of the ocular tunics, and reiterate the rule then laid down by them that such correction should be ordered at once when the amount of the myopia in dioptres is less than the age of the patient in years, but gradually when the amount of the myopia exceeds the age of the patient. They insist in the usual precautions with regard to posture, etc., and to prevent the patient from bringing the book too close, suggest that a rule, 30 c.m. long, should be held between it and the chin, or that uprights 30 c.m. long should be fixed to the school desk, with a cross bar between them, on which the child's brow can rest. In cases where the accommodation is weak they recommend that the child should be got to fix with one eye at a time (the other being covered to avoid convergence) small objects which are moved about between the punctum remotum and the punctum proximum. When glasses have been ordered similar exercises can be carried out with both eyes open and the glass on, but in this case the object fixed should never be brought within 30 cm. of the eyes. The authors believe that the full correction of myopia tends to prevent the occurrence of retinal detachment, and are strengthened in this opinion by the results of an investigation which showed that in 55 cases of the disease the myopia had only once been accurately corrected.

R. J. COULTER.

(13) Defects in Descemet's membrane have been observed in hydrophthalmos, in globular cornea, keratoconus, and intra-ocular tumours. To these conditions **Fleischer** adds high myopia, for he found the characteristic changes in two cases of myopia varying in degree from 9 D. to 25 D. The lines in the cornea, being highly refractive, and with double contours, appear very much like spun glass. Although the diameter of the corneæ was not increased, the presence of these defects in Descemet's membrane indicates that distention of the globe in high myopia is not confined to its posterior pole. C. MARKUS.

(14) **Stilling** recapitulates his teaching on this subject, which, he says, has been much misunderstood. The point which he wishes to emphasize is that myopia is caused by the growth of the eye under muscle pressure—and in which all the external

muscles are concerned, since they are all in a state of constant tension—the only variable ones, being the obliques which are active in near vision and which therefore may have a somewhat more marked influence—but the pressure is exercised by all the muscles.

A. LEVY.

II.—DACRYOPS.

Goldzieher, Max.—*Cyst of lacrymal gland-Dacryops.* (Ueber die Cyste der Thrænendrüse-Dacryops.) von Graefe's *Archiv f. Ophthalmologie*, 61, 2, 12 September, 1905.

Goldzieher describes a case of that rare affection dacryops, and reviews the literature on the subject. With regard to its pathology he differs from the general opinion, which attributes the formation of the cyst to retention of tears. Without absolutely denying the possibility of this causation, Goldzieher thinks dacryops is pathologically similar to ranula, and due to mucoid degeneration of a lobule of the gland and participation of the surrounding tissues in the process. The cyst always overhangs the outer corner of the eye, covered by the upper lid, and is semi-transparent and moveable. A frequent symptom is fluctuation in size, due to the variable secretion of tears and periodical—partial or total—depletion, if the duct remains patent. Another cystic degeneration of the lacrymal gland is of greater clinical importance. The cyst extends here behind the eyeball, and causes displacement and often grave symptoms. This form is generally distinguished under the name of hydatis glandulæ lacrymalis. The diagnosis of dacryops is not always easy, since very similar tumours are produced by dermoids and by lymphangioma. The first can be distinguished by the non-transparent contents, while diagnosis of the latter may only be possible by anatomical examination; lacrymal cyst being lined by a multiple layer of epithelium and showing, as a rule, "rests" of the glandular tissue, while lymphomatous cysts show a single layer of epithelium only.

R. GRUBER.

III.—INTRA-OCULAR TUMOURS.

- (1) **Alling, A. N.**—A congenital intra-ocular tumour containing epithelium and cartilage. *Trans. Amer. Oph. Society*, Vol. X, Pt. II (1904), p. 265.
- (2) **Fleischer.**—A contribution to the casuistic of choroidal tumours. (Beitrag zur Kasuistik der Aderhauttumoren.) *Klin. Monatsbl. f. Augenheilk.*, 1904, Bd. II, p. 353.

- (3) Brewerton, E. W.—**Tumour of the ciliary body.** *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 226.
- (4) Blaschek, A.—**A case of a rapidly-growing traumatic serous cyst of the iris.** (*Ein Fall von seröser traumatischer Iriscyste mit raschem Wachsthum.*) *Zeitschrift für Augenheilkunde*, Ergängungsheft, 1905.
- (5) Oatman, Edward L.—**Cysts of the pars iridica retinæ, with report of a case.** *Archives of Ophthalmology*, May, 1905.
- (6) Cutler, Colman W.—**Metastatic carcinoma of iris and ciliary body.** *Archives of Ophthalmology*, July, 1905.
- (7) de Schweinitz, C. E. and Shumway, E. A.—**Concerning melanoma of the choroid, with the report of one case of this character and of a pigmented sarcoma of the choroid early in its development.** *Ophthalmic Record*, July, 1905.
- (8) Owen, S. A.—**Glioma retinæ.** *Royal Lond. Ophth. Hosp. Reports*, Vol. 16, Part 3, October, 1905.
- (9) Hirschberg, J.—**On the diagnosis of sarcoma of the choroid.** (*Zur Diagnose des Aderhaut-Sarcom.*) *Centralbl. f. prak. Augenheilkunde*, November, 1905.
- (10) Wagner, P.—**Some cases of intra-ocular tumour.** (*Zur Kasuistik der intraokularen Tumoren.*) *Zeitschrift für Augenheilkunde*, Dezember, 1905.
- (11) Kowalewski, R.—**Metastatic carcinoma of the choroid.** (*Ueber metastatischen Aderhautkrebs.*) *Zeitschrift für Augenheilkunde*, Januar, 1906.

(1) Alling found a reddish-grey, somewhat translucent, tumour in the anterior chamber of a child, aged four years. A pigmented mass could be seen at the back of the iris in a position corresponding to that occupied by the tumour in front. The eye, which was free from signs of inflammation, was removed, and found to contain a whitish mass, 8 mm. by 10 mm., springing from the root of the iris and the ciliary body. A small extension into the anterior chamber was what had been visible clinically. The tumour, which was made up of embryonal tissue, containing epithelium and cartilage, had apparently originated from the stroma of the iris and ciliary body. The tumour may have been an endothelioma or a teratoma.

(2) The tumour took its origin from the margin of the papilla and extended into the optic nerve and the vitreous body.

A. BIRCH-HIRSCHFELD.

(3) A woman, aged 56 years, presented immediately behind the crystalline lens a growth, about as big as a pea, the surface

of which was somewhat nodular. It appeared to be derived from the ciliary body. The retina was detached for a short distance behind the growth, and below was completely separated. V. = fingers @ 1 metre. The eye was excised, and found by Brewerton to contain a sarcoma.

(4) **Blaschek** reports the case of a man, 43 years old, who had a perforating injury (iron?) of his left eye. The foreign body apparently lodged in the anterior chamber or iris. There was no inflammation ; but three weeks after, the patient noticed a black spot in his eye beneath the pupil, which rapidly grew bigger, and for which he later came to the hospital. The cyst then filled the lower half of the anterior chamber, being 6 mm. high, and occluding almost the whole pupil. It was excised and found to be an ordinary cyst, lined with flattened epithelium. It was, therefore, regarded as an implantation cyst. A. LEVY.

(5) Small cystoid spaces, situated in the pigmented epithelium on the posterior surface of the iris, **Oatman** says, are not infrequently observed in eyes which have been enucleated for various diseased conditions. They are usually associated with some destructive process, which renders their presence only of secondary importance. Occasionally, they are of large size, and in rare instances they constitute the principal clinical and pathological feature of a case.

The case here reported occurred in a totally blind and glaucomatous eye. Microscopic examination of the organ revealed the changes that are characteristic of absolute glaucoma, including total seclusion of the pupil by posterior annular synechia. In addition, a large serous cyst on the posterior surface of the iris was observed. It extended from the pupillary margin of the iris to the ciliary body, and was lined throughout with pigmented cells. Its anterior wall bulged forward into the anterior chamber, forming a partial *iris bombe*. Section showed that the cyst resulted from a separation of the two layers of pigmented epithelium which form the retinal tract of the iris. The anterior cyst wall was formed by the highly atrophic iris, and was lined with the outer layer of these cells ; while the posterior wall consisted of the inner layer of cells resting upon a fibrous membrane which evidently resulted from the organization of old plastic exudates. Some proliferation and swelling of the cells could be observed.

The development of these cystoid formations, Oatman states, depends upon the peculiar anatomical arrangements of the parts. The two layers of pigmented epithelium which form the pars iridica retinae are of embryological interest, inasmuch as they represent the anterior limit or edge of the secondary optic cup.

In the fully developed eye, the outer layer consists of a single row of irregular, ill-defined, spindle-shaped elements inseparably united to the posterior surface of the iris tissue. The inner layer is made up of well-defined columnar or polygonal cells, with spherical nuclei. He finds that these layers, which retain their embryological identity, are readily separated from one another, as may be observed in cases of ruptured posterior synechiæ, in which the cells from the inner layer remain attached to the lens (since the pathological union is firmer than the normal one). It is probable, he believes, that a combination of factors is necessary to produce a cyst in the retinal epithelium of the iris. The shrinking of organised plastic exudates, he says, may separate the outer from the inner layer, particularly if the iris is sclerosed and rigid. Treacher Collins, he informs us, regards obstruction to the lymphatic circulation as the principal cause. This was exemplified in one of the author's cases, in which a cyst was apparently due to the presence of a sarcoma in the ciliary body which obstructed the iris circulation. Obstruction, he asserts, is promoted also by adhesion of the periphery of the iris to the cornea. Another possible factor, he believes, is a vitiated aqueous humour. This occasionally occurs in degenerated eyes, aside from diabetes. This, he thinks, indicates that any profound alteration in the composition of the aqueous may affect the cells of the pars iridica retinae. The inner layer of pigmented iris epithelium, he tells us, is continuous with the inner non-pigmented epithelium of the ciliary processes; consequently, detachment of the former may lead to detachment of the latter, so that a portion of the posterior cyst wall is formed by non-pigmented cells. Such cases have been reported by Schieck and Rabitsch.* The author properly says that although these formations are called "cysts," their analogy to detachment of the retina is very evident. In fact, they are detachments of the pars iridica retinae. The term "cyst," however, he believes, is a convenient one to employ for clinical purposes. C. A. O.

(6) The clinical features which seem to characterize the tumor in **Cutler's** case were the dull gray color and flatness or extension of the growth laterally without sharp limitation—in which respect it differs from sarcoma. In appearance, the mass resembled a solitary tubercle or a gumma; there was, however, no iritis and no vascularity. Pain was intense and intraocular tension was normal. Microscopic examination showed the carcinomatous nature of the neoplasm. The author informs us that only two other cases of metastatic carcinoma involving the ciliary body and iris alone have been reported. C. A. O.

*For abstract of Rabitsch's case see **THE OPHTHALMOSCOPE**, June, 1905, p. 288.—EDITORS.

(7) The first of the cases described by **de Schweinitz** and **Shumway** was that of fibro-sarcoma of the inferior and superior parietal convolutions with optic neuritis and melanoma (pigmented nævus) of the left choroid occurring in a 32 year old coloured woman. The second, was that of endothelium of the dura mater with optic neuritis and melanosarcoma of the choroid at a very early stage of development in a white man of 47 years of age ; both cases were carried to autopsy.

Most of the choroidal sarcoma which have been described in literature have been larger. The microscopic findings in their cases strongly indicate that the choroidal growths were independent. The two cases have in common the marked pigmentation of the choroid and of the inner layer of the sclera, although the first was in a negro subject. In the first case there was a typical melanoma ; in the second, there was a beginning melanosarcoma of the choroid. In each, the choriocapillaris was not invaded and did not take any part in the formation of the thickening ; conforming to the rule that the starting point of melanotic growth is in the layer of large vessels. A further suggestive point in the anatomical investigation was the positive iron reaction shown by the cells of the growth. This reaction was present in the extreme periphery in both instances—at points where the cells develop the most rapidly.

As to the question of the origin of pigment in the melanotic growths of the choroid, it would seem, they say, that the conditions found must bear considerable weight, "especially as to the formation of the pigment from the blood."

They state that Leber's position that the retinal pigment cells have a prominent part in the formation of choroidal sarcomata is not confirmed by their cases, as these cells in their cases fail to show any evidence of proliferation or tendency to invade the growth.

C. A. O.

(8) This paper is a record of cases which have been examined at Moorfields Hospital, and which follows on and still further completes the cases which were recorded in previous communications published in these *Reports*, namely, one was by Lawford and Collins, and the other by C. Devereux Marshall. The present paper not only gives the further histories of as many of these cases as could be traced, but also records all the new cases which have occurred since 1897, which was the year when Marshall published his paper.

It is impossible to abstract such a paper as this which is essentially statistical, but numerous practical points are brought to light, and anyone interested in this important disease should read the paper in full. One interesting case is recorded in which glioma has appeared in different generations. A child when

5 months old had his eye removed for glioma in 1859. He grew up and had a son, whose eye was removed for glioma by Ridley in 1898. The elder patient also had a sister whose eyes were healthy, but she had two children, both of whom had one eye removed for glioma, and both died of the disease about six months later. This is the only case on record of a similar nature. The particulars of the various cases are set out in tabular form.

C. D. M.

(9) **Hirschberg**, in the present communication, lays stress upon the great assistance in the early diagnosis of sarcoma of the choroid to be obtained from the use of direct illumination of the interior of the eyeball by means of a powerful electric lamp. Several forms of apparatus for illuminating the interior through the sclera are touched upon, but Hirschberg believes that equal advantages may be sometimes derived by direct illumination through the dilated pupil. A case is cited in which this expedient proved to be of service. The patient, a man aged 58 years suffered from a leuco-sarcoma reaching from the ciliary body to within 3 mm. of the optic papilla on the temporal side of the eyeball.

A. LEVY.

(10) **Wagner** describes first, on account of its rarity, a circumpapillary melano-sarcoma of the choroid, in which a diagnosis could be made quite early and the growth of the tumour followed for some time, and the rapid failure of vision as it involved the macula noted. The second case is that of a diffuse sarcoma of the choroid, in which the whole choroid is infiltrated with sarcomatous tissue without the formation of a definite tumour, and following the rule of this curious form of new growth, has invaded the subjacent sclera rather than extended into the vitreous. The third case is that of a small tumour found accidentally in the ciliary body of an eye removed from a man, *etat* 53, on account of a perforating serpiginous ulcer. It consisted of a number of twisted convoluted cell columns, the cells being cubical and unpigmented. The spaces between the columns are filled with a homogenous substance like coagulated serum, and staining pink with eosin. The cell columns are directly continuous with the unpigmented layer of the epithelium of the ciliary body. The author considers this tumour to be of the nature of an adenoma, possibly of congenital origin. Parsons has described similar tumours, but considers them to be a senile change of the nature of a chronic degenerative hyperplasia of the epithelium, and calls them "papillomata."

A. LEVY.

(11) **Kowalewski** recounts the case of a woman, *etat* 48, who four years previously had her right breast removed for medullary carcinoma. There was a slight recurrence in the lower end of

the scar, together with a tumour in the right eye, occupying the temporal half of the globe from the ora serrata to near the macula. The tumour was diagnosed as a metastatic choroidal carcinoma, and the eye was enucleated. Three months later a papillitis developed in the remaining eye and soon other signs of increased intracranial pressure, and patient died two months later. At the *post-mortem* metastases were found in many parts of the body, including the brain. Kowalewski is of opinion that secondary carcinoma of the choroid is much more frequent than is generally supposed, and he states that it can be recognised ophthalmoscopically by its situation in the neighbourhood of the posterior pole of the globe, its flattened and frequently bilateral appearance, and the slight tendency to secondary glaucoma. A. LEVY.

IV.—HYSTERICAL AFFECTIONS OF THE EYE.

- (1) **Mahillon.**—On the value of the colour fields in the diagnosis and prognosis of certain nervous troubles following traumatism. (*Mise au point de la question de l'utilité du relevé des champs visuels colorés pour le diagnostic et le prognostic de certains troubles nerveux consécutifs aux traumatismes.*) *Recueil d'ophthalmologie*, janvier, 1904.
- (2) **Mortimer, Frank.**—Hysterical iridoplegia and cycloplegia, with report of a case. *Archives of Ophthalmology*, May, 1904.
- (3) **Teillaud.**—On ocular traumatic hysteria. (*De l'hystéro-traumatisme oculaire.*) *Recueil d'ophthalmologie*, juin, 1904.
- (4) **Holden, Ward, A.**—The eye symptoms of hysteria, neurasthenia, and the traumatic neuroses. *Medical News*, 30th July, 1904.
- (5) **Evans, J. Jameson.**—The eye symptoms of traumatic hysteria. *Birmingham Medical Review*, September, 1904.
- (6) **Fish, Manning H.**—Hysterical asthenopia. *Ophthalmology*, October, 1904.
- (6A) **Fernandez, J. Santos.**—Hysterical nystagmus. (*Le nystagmus hystérique.*) *La Clinique ophthalmologique*, 10 novembre, 1904.
- (7) **Carlini, Vittorio.**—A clinical study of intermittent mydriasis in hysteria. (*Midriasi intermittente di natura isterica.*) *La Clinica Oculistica*, septembre, 1905.

- (8) Bach, L.—**Traumatic neuroses and accident insurance.** (*Traumatische Neurose und Unfallbegutachtung.*) *Zeitschr. f. Augenh.*, Sept.-Okt., 1905.
- (9) Ramos.—**On certain ocular symptoms of hysterical nature and their diagnostic value.** (*Algunos fenomenos oculares paradojicos de naturaleza histerica y su valor diagnostico.*) *Anales de Oftalmologia*, Enero, 1906.

(1) Bichelonne and others are of the opinion that concentric contraction of the visual field can be easily simulated by an adroit malingerer. Mahillon is convinced that records of the visual fields, and especially of the colcur fields, are of the greatest importance, and can hardly be simulated by the class of patient who claims compensation for injury. He urges the necessity of making the examinations as quickly as possible, as patients suffering from nervous affections are easily fatigued. A few minutes rest should also be given after the examination of each colour field. The author's observations show that uniform contraction of the visual field, accompanied by inversion of the colour fields, are frequently met with in hysteria, and almost always in traumatic hysteria. The order of magnitude of the fields is generally red, yellow, blue, green, violet. The red field is the largest, and is characteristic of this dyschromatopsia. Anomalies of the visual fields are not necessarily found in all cases of traumatic neurosis, nor can anomalous fields serve exclusively for the diagnosis of that affection. But along with other nervous symptoms, and the history, contraction of the visual fields, with inversion of the colour fields, are almost characteristic of traumatic hysteria. This variety of traumatic neurosis is serious, particularly when pronounced neurasthetic troubles are added. It is resistant to treatment, and calls for a guarded prognosis. J. JAMESON EVANS.

(2) In April, 1903, the patient, a married woman, thirty-three years old, complained of not having seen well with the left eye for two years; also of pain at the back of her head. Her temperament was nervous and excitable, although not markedly so. She had never had any serious illness, and the family history was negative. The left pupil measured 5 mm., the right scarcely 3 mm. The patient had noticed a difference in the size of her pupils since July, 1902, but only when nervous and excited. The iris of the left eye did not respond to light or accommodation; the reflexes of the right being normal. A spasmodic twitching of the left trapezius muscle was observed at intervals. Knee- and elbow-reflexes were normal. Sensitive hyperæsthetic areas were demonstrated over the left mammary and hypochondriac regions. The

visual field of the left eye showed that for white slightly contracted, and colour fields overlapped; no scotomata. After finishing the examination, another field of the left eye was taken, revealing still more contraction and transposition, indicating further evidences of anaesthesia of the perceptive elements of the retina. Vision in each eye equalled $\frac{1}{2}$. With the right eye the patient read 0.50 D. Snellen's type at 13 cm., but with the left eye only 4.50 D. was read. Proper correction gave a vision of $\frac{1}{2}$. One week later, vision in the left eye had not improved, and the fields were even more contracted and transposed. Medication did not effect a cure, but a summer away from the city caused all symptoms to disappear.

The diagnosis was made by absence of any lesion of the central nervous system or of ophthalmoscopic findings; the typical fields; the hyperaesthetic areas; and by the after-history not corresponding with the course of any known organic disease.

JOSEPHINE W. HILDRUP.

(3) **Teillaud** describes five cases of hysteria, in the male and female, following comparatively slight injuries to the eye or neighbouring structures. Bilateral or unilateral amblyopia, with anaesthesia of the eye and sometimes of other parts of the body, appear to have been the outstanding features of the cases. Other symptoms noted were contracted fields, dyschromatopsia, loss of colour vision, transitory paralysis of the extremities, and blepharospasm. The fundus was normal in all cases. In one case only was there a distinct convulsive attack, and this followed division of the canaliculus. The ocular symptoms generally appeared a few days, and even as long as two months, after the injury. Relapses were common, and in some cases the eye on the uninjured side became the more severely affected during the second attack. The duration of the hysteria varied from a few days to a year or more. The eye symptoms are regarded by the author as the precursors of a general neurosis. There is generally a neurotic family history, but specific fevers, e.g., typhoid, may be responsible, as direct cause of the neurotic state which admits of the production of traumatic hysteria by slight injuries.

J. JAMESON EVANS.

(4) **Holden** discusses and describes the ocular manifestations of neurosis, such as anaesthesia of the cornea, unilateral diplopia, tremor of the eyelids, ptosis, blepharospasm, amblyopia, anomalies of the visual field, etc. Several illustrative cases of an interesting kind are quoted.

(5) In view of the difficulty there is sometimes experienced in distinguishing functional from organic eye lesions, **Evans** records two cases fairly typical of the former class, and draws

attention to the fact that men are sometimes affected as well as women. *Case No. 1* was a factory girl, aged 23 years, who received a blow on her right eye in January, 1900. The damage done was insignificant, and should have been well in a few days. On February 14th she was again seen with injection of the conjunctiva, photophobia, and lacrymation; the eye was usually kept closed. The pupils were normal; there was no real neuritis; the fields were contracted. She was treated with atropine, bromide, and galvanism. The symptoms recurred in spite of treatment during the next two years, with various other hysterical manifestations. *Case No. 2* was a collier, aged 27 years, who was struck by a piece of rock on the external angular process on April 2nd, 1902. After some treatment he was seen by Evans ten months afterwards, as he wished the eye to be removed on account of pain. There was some congestion and no vision, while he could only count fingers with the other eye. The field of the seeing eye was contracted. He was not again seen. In such cases the fields are always contracted, and there is inversion of the colour fields. The discouraging feature is the bad prognosis and the inefficiency of treatment. Hypnotic suggestion gave no result.

C. D. M.

(6) Fish reports six cases of latent frontal sinusitis, in which he notes a striking resemblance in symptomatology to that of hysterical asthenopia. In spite of having good vision, each patient gave a history of recurring attacks of asthenopia. There was tenderness upon pressure over the frontal sinuses. Correction of the ametropia failed to relieve the symptoms, which were immediately stopped by probing the frontonasal canal and syringing the frontal sinus. The author thinks that latent frontal sinusitis is a much more prevalent affection than it is supposed to be; that the cases are not so diagnosed is because many have no symptoms other than neuralgia and accommodative disturbances with the consequent asthenopia. The majority of his cases had no nasal discharge, and except for a hyperæmia of the nasal passages, presented negative findings. Aggravation of the asthenopia and neuralgia may come on, he says, at any time from a cold or any condition producing an occlusion of the minute frontonasal duct. Fish finds frontal sinusitis to be the active cause in ten per cent. of his cases of asthenopia.

FRANK W. MARLOW.

(6A) According to Charcot, nystagmus does not occur in hysteria. Fernandez, however, relates a case, and refers to others by Fétré and Sabrazès. In the present case the symptom was associated, in a lady of 40 years, with hysterical left hemiplegia.

ERNEST THOMSON.

(7) Intermittent mydriasis is not uncommonly a symptom of some organic disease of the central nervous system. Without being a frequent phenomenon, it is more often seen in connection with hysteria. Apart from any nervous disorder, unilateral dilatation of the pupil may be seen accompanying irritation of the corresponding sympathetic nerve. Thus aneurism of the aorta, and other mediastinal tumours, give rise to this symptom, which may also be caused by pressure from pericardial or pleural effusions. The diagnosis of the cause of such a mydriasis is, therefore, often difficult.

In the case which Carlini brings forward, the patient was a girl, aged 26 years, who had always had good health until the recent illness ; this began with a cough about four years before, and some bronchitis persisted. For the past year she had noticed that her right pupil dilated at times and, after a varying period, returned to its normal size, to dilate again after a short respite. A very careful examination of the chest disclosed no definite signs of tubercle ; there were a few fine sounds, especially on inspiration, but no bacilli were found in the sputum. Otherwise the chest and, indeed, the whole body, presented no abnormality, except the pupil disturbance and slight exophthalmos. The right pupil was enormously dilated, of a diameter of about 8 mm., the left being 4 mm. ; its reaction to light, accommodation, and convergence was very small, but there was reaction. The left was normal in every respect. The sight of the left eye was normal, R.V. $\frac{1}{2}$. Slight contraction of the visual field, but no definite hysterical characters ; accommodation normal in extent. Sensation of conjunctivæ and corneæ reduced. During treatment the thoracic trouble rapidly improved, but the ocular signs remained unaltered. The recurrent mydriasis was proved not to depend on surreptitious instillation of atropine. The attacks lasted sometimes a few hours, sometimes as long as four days.

The exophthalmos was more persistent than the mydriasis, and did not disappear with the latter. When the pupil was widely dilated, escrine was able to reduce it to a pin-point. On two occasions when this was done, the left pupil dilated enormously, while the right contracted ; once the same transference was noted without the instillation of a myotic.

The visual acuity and the visual field varied somewhat, according to suggestion. Atropine was instilled once to see if it would occasion any further dilatation ; it had no effect except to paralyse the accommodation. It was at first thought that the pupil disturbance was due to tuberculous lesions at the root of the lung, especially since Destrée has pointed out that in 97% of cases of pulmonary tubercle, there may be seen unequal

dilatation of the pupils. The intermittence, and still more the alternations of the pupil symptoms, were strongly against this hypothesis and, Carlini thinks, are sufficient ground for abandoning the idea.

Further, there were noted while the girl was under observation, fugitive changes in the acuity of vision and in the extent of the field, which cannot be accounted for on any supposition but hysteria ; even if the cause be granted, the mechanism of production remains to find. Was the dilatation paralytic or spastic ? Paralysis is impossible, since no other branch of the third nerve was affected, and, further, the reactions to light and convergence were retained, although to a very slight degree. The absence of action to atropine is entirely in favour of spasm, and the only thing against this idea is the overbearing action of eserine ; this, however, Carlini thinks, need not disturb us.

HAROLD GRIMSDALE.

(8) **Bach** gives the following symptoms which he found in traumatic neuroses :

Muscle cramps, either of the eyeball or of the lids, occasionally tonic, more frequently clonic. Turning grey of the eyelashes and eyebrows on the injured side, and once the eyelashes became grey in an anaesthetic area. Vaso-motor disturbances evidenced by some cyanosis of the lids and occasionally by dermographic symptoms on various parts of the body.

Hyper- and anaesthesia of the conjunctiva and cornea were frequent Hyperaesthesia rare. Inequality of the pupils is to be taken as evidence of the existence of an organic lesion, but enlarged pupils with extremely prompt reactions are often seen in neuroses.

Disturbances of vision are a frequent complaint and resemble greatly the complaints of hysteria. Concentric limitation of the field of vision is seen, but its importance has been over-rated. Among other symptoms are found insomnia, headaches, rapid onset of fatigue, irritability, etc. The reflexes were generally diminished, except the tendon reflexes which were more often increased.

As a prophylactic the examining physician should never ask leading questions and should never discuss the condition of the patient either with him or in his presence.

As treatment, residence in some institute for nerve treatment, and a speedy settling of the insurance question. The prognosis is unfavourable—many cases are improved but practically none cured.

A. LEVY.

(9) Certain ocular symptoms have been called paradoxical, because they appear to contradict all experience. They do not seem to be artificial : the patient may not recognise their presence

until his attention is called to them. Among the most curious are the affections of the visual field, and especially those of the colour fields. Many hysterical patients are unable to recognise certain colours, for example, green. If such a patient be examined by means of a disc of green and red segments, he will probably state that it is indistinguishable from a disc with red and white sectors, so long as the two are at rest; if they are made to rotate, he will at once distinguish them, saying that the first is whitish, and the second pale red; this distinction agrees with that of a normal person. Sometimes the dyschromatopsia is monocular; then one eye will see a square of paper green, as a normal person would, and the other grey. But if the images are doubled by a prism, both are seen as green. Further, the after-image seen by the amblyopic eye will have its normal colour.

All these and similar symptoms are of great diagnostic value; as to their explanation, it is at present impossible to give a complete one, but it is probable that there is an interruption between the relays of the higher nervous centres, possibly due to want of proper amoeboid movements of the arborisations of the nerve cells.

HAROLD GRIMSDALE.

V.—TREATMENT.

(*Fourth Notice.*)

- (1) Moissonnièr (Tours).—On the efficacy of sub-conjunctival injections of three per cent. sodium chloride serum in ocular infections. (*De l'efficacité des injections sous-conjonctivales de sérum Na Cl à 3 % dans les infections oculaires.*) *La Clinique Ophthalmologique*, 25 février, 1905.
- (2) Abadie and Cunéo.—Treatment of grave blepharospasm by spino-facial anastomosis. (*Traitemennt du blépharospasme grave par l'anastomose spino-faciale.*) *Archives d'ophthalmologie*, avril, 1905.
- (3) Church, B. F.—Local anaesthetics and analgesics in ophthalmic practice. *Ophthalmology*, July, 1905.
- (4) Mayeda.—On the influence of tattooing of the cornea on sight. (*Ueber den Einfluss der Hornhaut-Tätowierung auf die Sehschärfe.*) *Beiträge zur Augenheilkunde*, September, 1905.

- (5) Paul, L.—Contribution to the serum-treatment of serpiginous corneal ulcer. (*Beiträge zur Serumtherapie des Ulcus corneæ serpens.*) *Klin. Monatsbl. f. Augenheilkunde*, Oktober, 1905.
- (6) Valude.—Blepharospasm treated by deep injections of alcohol at the point of emergence of the facial nerve. (*Le blépharospasm traité par les injections profondes d'alcool au niveau de l'émergence du nerf facial.*) *Ann. d'oculistique*, T. CXXXIV, p. 436, décembre, 1905.
- (7) Danlos.—Upon an improvement in the technique of the injections of soluble mercurial salts. (*Sur un perfectionnement dans la technique des injections mercurielles solubles.*) *Gazette des Hôpitaux*, novembre 18, 1905.
- (8) Terson, A.—Guaiacol in ocular therapeutics. (*Le gaiacol en thérapeutique oculaire.*) *La Clinique ophthalmologique*, 10 décembre, 1905. (*Das Guajakol in der augenärztlichen Therapie.*) *Die Ophthalmologische Klinik*, 30 Januar, 1906.
- (9) Darier, A.—On the mode of action of radium on granular conjunctivitis. (*Du mode d'action du radium sur la conjonctivite granuleuse.*) *La Clinique ophthalmologique*, 10 janvier, 1906.
- (10) Darier, A.—Alypin: a new ocular anæsthetic. (*Un nouvel anæstétique: Alypine.*) *La Clinique ophthalmologique*, 25 février, 1906.
- (11) Wolffberg (Breslau).—Some experiences with Lenicet-vaseline in ophthalmology. (*Einige Erfahrungen mit Lenicet-Vaseline in der Augenheilkunde.*) *Wochenschrift für Therapie und Hygiene des Auges*, 15 März, 1906.
- (12) Wray, Charles.—The treatment of iritis, serous iritis, and interstitial keratitis by acetozone. *The General Practitioner*, 12 May, 1906.

(1) Moissonnier relates two cases of late infection, supposed to be of endogenous origin, after cataract operations, in which 3% NaCl was injected sub-conjunctivally. The first patient recovered V.= $\frac{2}{3}$. In the second case "the eye was saved," but V. is not stated. The writer then passes on to relate some other cases of traumatic infection of the eyeball, in which injection of NaCl gave good results. An interesting point is that in the first cataract case the eye got worse under cyanide of mercury

injections previous to the commencement of treatment by Na Cl. The writer is persuaded that Na Cl is preferable to cyanide in many cases, gives as good or a better result, and is much less painful. He quotes opinions as to its mode of action, but does not give any of his own.

ERNEST THOMSON.

(2) The tonic form of senile blepharospasm, as everybody knows, is an intractable condition, and when both eyes are involved, it renders the sufferer quasi-blind. Galvanism, suggestion, bromide of potassium, arsenic, and such surgical measures as division of the branches of the facial nerve and resection of portions of the orbicularis palpebrarum muscle, may each and all prove inadequate to cure this distressing ailment. Abadie and Cunéo, however, have recently succeeded in curing a case by adopting Kennedy's recommendation, namely, to effect an anastomosis between the facial nerve, on the one hand, and the spinal accessory, on the other. The essential facts of the case follow:—an emotional woman, aged 55 years, was seen by Abadie in 1903 with blepharospasm of the eyelids of the right eye. The condition, which was associated with contraction of the corresponding side of the face, had persisted for fifteen years, and had come on immediately after a severe mental shock. At first it had been intermittent, but for six months it had been practically continuous. Inasmuch as the other eye was amblyopic (V. — $\frac{1}{60}$), the condition was serious. Slighter surgical measures having failed to relieve the spasm, Cunéo divided the facial nerve and implanted the peripheral end of the last-named upon the external branch of the spinal accessory. The immediate consequence was paralysis of the right side of the face. The remote result about one year after operation (8th October, 1903, — 26th October, 1904) was good. The patient's face had almost recovered its symmetry, and complete symmetry was restored the moment she made the least effort with her right arm, as in holding up an umbrella. The blepharospasm had wholly disappeared, and the eyelids came into apposition during sleep. There was no paralysis either of the sterno-mastoid or trapezius.

The remainder of the communication is occupied by remarks upon (1) the therapeutic results that can be obtained by the operation of spino-facial anastomosis; (2) the physiological explanation of the results; and (3) the *technique* of the operation itself.

H. de V.

(4) **Meyeda** gives particulars of thirty cases where he has tattooed central corneal opacities with excellent results as regards sight.

R. GRUBER.

(5) **Paul** has had experience with Roemer's serum in four cases of serpiginous ulcer of the cornea due to pneumococci infection, which he treated with the subcutaneous injection of

maximal doses (10 to 20 ccm. repeatedly, up to 80 ccm.). The results were satisfactory, as a cure was effected after a time varying from two to five weeks. On the other hand, **Paul** himself emphasizes the fact, and illustrates it with notes on four cases, that some serpiginous ulcers have a tendency to heal without any energetic treatment, so that the good results observed under the serum treatment are not entirely conclusive.

C. MARKUS.

(6) **Valude** has treated two cases of non-painful blepharospasm, one of three and the other of ten years' duration, by deep injections of alcohol at the point of emergence of the facial nerve from the temporal bone, according to the method recommended by Schloesser. The *technique* of the procedure is as follows.—the ear is pulled forwards and upwards and a hypodermic needle is entered between the anterior surface of the mastoid process and the inferior surface of the cartilaginous part of the external auditory meatus and pushed inwards and slightly forwards for 2 centimetres until it meets with bony resistance (the styloid process) when it is turned a little backwards along the temporal bone and reaches the stylo-mastoid foramen. Twenty centigrammes of alcohol are then injected, followed at intervals by a series of injections of 10 centigrammes until 1 gramme has been injected. The solution employed by Valude consisted of 1 centigramme of cocaine dissolved in 1 c.c.m. of 80% alcohol, and the immediate result of the injection in his cases was to produce paralysis of the facial nerve, which, however, passed off in about a day, leaving the patients free from blepharospasm. The good results still persisted when the patients were last seen twelve and fifteen days respectively after the operation, and Valude considers that even if relapses were to occur, the establishment of intermissions would prove a great step towards obtaining permanent cures.

R. J. COULTER

(7) Following the example of Midy, **Danlos** recommends the addition of subcutine to a soluble mercurial salt, in order to avoid pain. The formula is:—Mercury biniodide, 1; sodium iodide, 1; subcutine, 5; sodium chloride, 2; sterilised ozone water, 1. This liquid, intended for intra-muscular injection, is put up in *ampoules*, which contain one to two cubic centimetres.

(8) Synthetically prepared crystallised guaiacol (Behal et Choaz) has been used by **Terson** in various ways—as an anti-septic, anaesthetic, analgesic, and anti-thermic. It may be applied to the skin in zona, facial neuralgia, etc., by painting on the liquified crystals, or the solution in glycerine or oil. As regards its application to the conjunctiva, when mixed with copper sulphate the pain is less than with copper sulphate alone. A solution in sterilized oil may be used in conjunctivo-corneal

burns, and particularly in the various forms of tuberculosis of the external membranes of the eye. The oily solution or ointment may be used in nasal conditions. It may be given internally as a substitute for creosote, and especially in the form of guaiacolated cod-liver oil. With biniiodide of mercury, guaiacol lessens the pain of intra-muscular injection.

ERNEST THOMSON.

(9) This is practically an abstract by **Darier** of an article by Thielemann, of Königsberg, in the *Zeitschrift f. Augenheilkunde*, of December, 1905.

ERNEST THOMSON.

(10) **Darier**, in giving the result of his experience with alyppin, does not consider it has many advantages over cocaine and other anaesthetics for eye use. The duration of its effect is, in his opinion, too short for most operations unless the dose be repeated four or five times. It does not act much on the iris, and is therefore not so good as cocaine for iridectomy. As to the fact that it has no action upon the pupil or upon accommodation, this has already been realised with holocaine, euacaine, and stoväine. "Finally, we can say that cocaine employed with care and in moderate doses still remains the most usual local anaesthetic."

ERNEST THOMSON.

(11) Lenicet is a very fine, snow-white, difficultly soluble inodourless powder. It is an acetate of alumina. **Wolfberg** has employed a 10 per cent. preparation of this in vaseline ("Lenicet-Vaseline"), which is sold by the chemists in boxes containing 20 grammes, as a substitute for zinc oxide, boric acid, etc. It is said to be superior to these as an antiseptic in skin diseases of the lids, in burns of the lids, in conjunctival affections, and as a vehicle for alkaloids such as scopolamine, cocaine, and atropin.

ERNEST THOMSON.

(12) **Wray** assumes that iritis, serous iritis, and interstitial keratitis are caused by irritating substances in the blood, which may or may not be due to bacterial action. He treats the diseases in question by administering, four or five times a day, capsules, each of which contains three grains of acetozone. In addition, he prescribes brisk exercise and the copious drinking of water.

VI.—INSTRUMENTS AND APPLIANCES.

- (1) **Bouchart**.—A box for determining the true vision of a malingerer. (*Boîte pour déterminer l'acuité vrai d'un simulateur.*) *L'Ophthalmologie Provinciale*, II, p. 32, mai, 1905.

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- (2) Rhoads, J. N.—A shield for the eye in skiascopy. *Ophthalmic Record*, June, 1905.
 - (3) Thompson, H. Wright.—A convenient instrument for rapid retinoscopy. *Ophthalmic Review*, July, 1905.
 - (4) Haltenhoff.—On the use of Berger's binocular lens in ophthalmic practice. (De l'emploi des loupes binoculaires de Berger en oculistique.) *La Clinique Ophthalmologique*, 10 octobre, 1905.
 - (5) Horniker, E., and Romanin, V.—An apparatus to aid in the treatment of trachoma by Röntgen rays. (Ueber einen Hülfsapparat zur Behandlung des Trachoms mit Röntgenstrahlen.) *Zeitschr. f. Augenh.*, Dezember, 1905.
 - (6) Terson.—Scissors for section of the optic nerve in enucleation. (Ciseaux pour le section du nerf optique dans l'enucléation.) *Ann. d'oculistique*, T. CXXXIV, p. 439, décembre, 1905.
 - (7) Stevenson, Mark D.—A new punch for removing membranes from the postpupillary space in traumatic or secondary cataract, and for making an artificial pupil. *Ophthalmology*, January, 1906.
 - (8) Haas.—Armed probes. (Die armierte Sonde.) *Wochenschrift für Therapie und Hygiene des Auges*, 1 Februar, 1906.
 - (9) Peters, A.—Bier-Klapp's suction apparatus. *Ophth. Klinik*, März, 1906.
 - (10) Lange, O.—Upon diaphanoscopy of the eyes. (Zur Diaphanoskopie des Auges.) *Klin. Monatsbl. f. Augenheilkunde*, April—Mai, 1906.

(1) This device, which Bouchart says he has used for the past three years with satisfactory results, consists of a box 50 cm. long, containing two similar sets of optotypes and four mirrors, which are so arranged that by a slight turn of a handle the apparent distance of the optotype from an eye looking through an opening provided for the purpose can be made 40, 60, 100, or 150 cm. without the person under examination being able to judge the distance at which he is being tested. By a comparison of the answers given any false statements can usually be detected.
R. J. COULTER.

(2) Rhoads, finding the continual use of the retinoscope tired his left or unused eye to such an extent that some days he was

"less unable to continue his work," has had a sheet-iron shade with a half-inch brass tube attached at right angles, and extending about two inches, constructed in such a way that it could be hung upon his retinoscope by means of a carrier. The result was a great relief to his eyes ; "but the tube seemed to be too much in the way." He then made one with a lip extending out about an inch and a half, and found that it worked perfectly, permitting the user to get close to the source of light, by which means he was enabled to secure more light and move away to any distance without the light shining into the unused eye, which could be kept open. The author has since had an asbestos shade made upon this plan. C. A. O.

(3) **Thompson's** instrument consists of a light circular frame, attached by its centre to a long stem, and having twenty of the lenses most commonly used in retinoscopy mounted in it. When in use, one end of the stem is held under the right arm, while the left directs and rotates it in front of the patient's eye. It thus in use resembles an optometer. Its weight is 9 ozs., and its cost is small. C. D. M.

(5) During some work with Röntgen rays on trachoma **Horniker** and **Romanin** had difficulty in maintaining the lids well everted during the exposure without at the same time giving themselves an X-ray dermatitis of the hands. To obviate this difficulty, they constructed the apparatus described and figured in this paper, which effectively maintained the lids well everted without causing any pain to the patient. It consists of two hard rubber lid elevators of appropriate shape fixed by movable arms to a board upon which the head of the patient rests. A. LEVY.

(6) **Terson** has had scissors made for section of the nerve in excision of the eye with the points rounded on both sides so as have no angle, while the upper blade has no bevel but is extremely thick and completely covers the lower blade, its fore end being quite smooth and blunt. He claims that the thick anterior blade allows the nerve to be cut some distance behind the sclerotic, while the blunt points obviate any risk of perforation of the eyeball. R. J. COULTER.

(7) For the removal of these membranes, the instrument illustrated in the accompanying cut was suggested to the writer by the use of a somewhat similar one devised by Kruger-Krjukow.^{*} **Stevenson** thinks his instrument preferable for the following reasons : I. It is held like a pen or pencil, the index finger resting on the small lever, making it very much easier to

* History repeats itself ! For illustration of a somewhat similar instrument by Vacher, readers are referred to THE OPHTHALMOSCOPE, August, 1905, p. 412.—EDITORS.

manipulate than the other instrument, in which the thumb rests from below on the lever, causing the hand to be held in an awkward and unnatural position. 2. The large corrugated handle of the Stevenson instrument makes it much easier to manipulate than the other, which has a smooth handle that is especially "slippery when wet with some solution." 3. With the Stevenson instrument the small inner portion of the punch is introduced through an opening in the capsule or iris, instead of the large outer portion, as is done with the other instrument; thus necessitating a much smaller preliminary opening in the capsule. 4. In the Stevenson instrument there is no long pointed extremity on the outer cutting portion, which makes it much easier to introduce, since the blades need not be entered within the corneal incision before they can be separated so as to pass the smaller one through the opening in the capsule or membrane, which must be done with the other. It is also possible to remove portions of the capsule even beyond the pupil, as there is no projecting point to impinge upon the structures on the opposite side. This point on the other instrument is not sufficiently sharp to be used in making an opening in the capsule; and, if used for this purpose, there will be great danger of rupturing the suspensory ligament or of unduly pulling upon the ciliary body or iris. (The writer states that he has found it much safer to make the opening in the capsule by a Gräfe knife or a keratome after first obtaining a large peripheral corneo-scleral section in the desired location,—usually below). 5. Since the cutting portion which passes within the eyeball is much longer in the Stevenson instrument, any large piece of capsule extending across the pupil may be readily removed whenever necessary. This portion of the other instrument is much too short, and if passed through a corneo-scleral opening does not reach much farther than the proximal side of the pupil, unless it is pushed so far in as to fold the cornea upon it. 6. The Stevenson instrument cuts from within



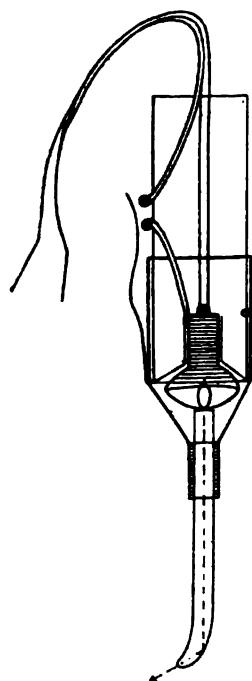
outward, thus bringing any portion to be removed into the anterior chamber from which it may be readily extracted; in fact, the mass usually comes out with the instrument. The other instrument forces the cut portion into the vitreous, making it difficult or impossible to remove it: and 7. The portion of the capsule about to be removed by the Stevenson instrument can be easily seen. This is not so with the other contrivance.

Stevenson says that his instrument may be employed to remove (completely) large portions of capsular epithelial or fibrous membrane, as well as iris tissue in closed pupils. In young people where traumatic cataracts cause annoyance by a white appearance in the pupil, a black one can be obtained by means of this instrument, which is often impossible by any other means. Often, postpupillary membranes are too tough for needling, and there would be danger of tearing the suspensory ligament or of producing an uveitis during attempts at such an operation. In order that clean pieces of membrane may be successfully removed, the instrument must be properly and carefully made, and must have every portion of its cutting edge sufficiently sharp to cut shreds of cotton. When the instrument cuts cleanly without any remaining tags, no tension is brought to bear upon the suspensory ligament. Care should be exercised in preserving the instrument: to cut paper or other hard substances with it is to destroy its sharpness. C. A. O.

(8) **Haas** describes a neat case of probes for the special purpose of applying fused silver nitrate to minute points, such as hair follicles, corneal ulcers, fistulas, etc.* **ERNEST THOMSON.**

(9) Bier-Klapp's suction apparatus is recommended to take the place of Heurteloup's artificial leech. It is simply a device for dry cupping, and seems scarcely deserving of a new name. It consists of a small bell-glass, to the convexity of which a rubber ball is attached. **Peters** believes that he has obtained benefit in cases of myopia, with "central changes" and slight vitreous opacities.

PERCIVAL J. HAY.



* These probes were described in June, 1904, by Qurin (*see THE OPHTHALMOSCOPE*, May 1st, 1905, p. 241.)—EDITORS.

(10) **Lange** has invented a new diaphanoscope, which appears to present certain advantages over the older forms of transilluminator. It is inexpensive, costing thirteen marks only (from Ernst Schiller, 34, Schützenstrasse, Braunschweig). Its construction permits of its being applied far back over the globe, indeed, to a greater part of the sclera, which is not the case with some of the other instruments, notably with that of Leber. It consists (as shown by the cut) of a hard-rubber cylinder, 5 cm. long by 2.5 cm. in diameter, containing at one end a small electric glow lamp of ten volts. The end of the rubber cylinder is capped by a nickelled clasp, into which is fixed a glass rod, 5 cm. in length. The free end of the rod is slightly curved, and terminates in a point, 2 mm. in diameter. A suitable key, shown in the cut, allows control of the current. The entire instrument weighs 67 grammes, and has a length of 11.5 cm.

S. S.

VII.—MISCELLANEOUS.

Ashby, Henry, and Stephenson, Sydney.—*Acute amaurosis following infantile convulsions.* *Reports of the Society for the Study of Disease in Children*, Vol. III. (1903), p. 197.

This communication, which was published in the *Lancet* of May 9th, 1903, has already been reviewed in our columns (see THE OPHTHALMOSCOPE, Vol. I (1903), p. 104).

Partridge, A. A. H.—*Unusual joint changes in a child the subject of inherited syphilis.* *Reports of the Society for the Study of Disease in Children*, Vol. III (1903), p. 230.

See THE OPHTHALMOSCOPE, Vol. I (1903), p. 114.

Bickerton, Reginald E.—*Peculiar changes in optic disc, retina, and choroid (? tubercle).* *Trans. Ophthal. Society*, Vol. XXV (1905), p. 102.

Thompson, George W.—*Intra-ocular swelling (gumma) (? neoplasm).* *Trans. Ophthal. Society*, Vol. XXV (1905), p. 105.

Cruise, Richard R.—*A case of two subhyaloid haemorrhages in one eye with haemorrhage on the disc.* *Trans. Ophthal. Society*, Vol. XXV (1905), p. 107.

Snowball, Thomas.—*Case of albuminuric retinitis in a young girl.* *Trans. Ophthal. Society*, Vol. XXV (1905), p. 108.

A girl, aged 17 years, who showed no signs of hereditary syphilis, presented the fundus changes characteristic of albuminuric retinitis. She died from uræmia about $3\frac{1}{2}$ months after she was first examined by Snowball.

Wicherkiewicz.—**Remarks on primary keratoconus.** (*Einiges ueber den primären Hornhautkegel.*). *Zeitschrift für Augenheilkunde*, Februar, 1905.

Wicherkiewicz is of the opinion that keratoconus is brought about by increase of tension in the eye, together with a predisposition or a weakening of the corneal tissue of unknown causation. The cornea is normally thinnest in its centre, and the author attempts to explain the usual position slightly down and out from the centre as being brought about by the patients squeezing their lids together in an attempt to obtain clearer vision. Some cases are of traumatic origin.

A. LEVY.

Bouzitat.—**The ocular manifestations of iodide of potassium.** (*Les manifestations oculaires de l'iodure de potassium.*) *Recueil d'ophtalmologie*, XXV (1903), p. 590.

Bouzitat saw rapid improvement occur in the eye of a patient, affected with lacrymal disease and ulceration of the cornea, follow the stoppage of potassium iodide, of which four grammes had been taken daily for about three months, on account of a simultaneous affection of the nose, of non-syphilitic nature.

H. DE V.

Polack.—**A photoptometric perimeter.** (*Périmètre photoptomètre.*) *Ann. d'oculistique*, T. CXXXIII, p. 45, janvier, 1905.

Polack describes an instrument which he has devised for taking the field of vision for white or coloured light of varying intensity. He claims that it can be used as a photoptometer, perimeter, chromatoptometer, and strabismometer.

Murrell, W.—**A case of conjunctival arthritis in an adult.** *Lancet*, 28th January, 1905.

A man, aged 25 years, developed within a few hours of one another conjunctivitis and arthritis. Temperature, when seen by Murrell, 101.8° F. No cardiac complication. No gonorrhœa present. History of acute rheumatism at the age of 22 years. Fluid obtained by puncture from one knee-joint contained no micro-organisms. No gonococci found in secretion from the inflamed eyes. In the further course of the case there were several attacks of conjunctivitis and arthritis of gradually decreasing severity. Patient finally discharged cured after about two months' stay in hospital. Murrell believes that the case was one of gonococcal infection, although the evidence on this point is far from conclusive to any unbiased reader of an interesting report.

It might be suggested, with at least equal plausibility, that the arthritis and the conjunctivitis were both due to the poison of acute rheumatism.

Hand, Johann.—On idiopathic hemeralopia. (*Zur idiotischen Hemeralopie.*) *Wiener Klinische Wochenschrift*, No. 52, 1905.

Hand observed the sudden occurrence of idiopathic hemeralopia among the garrison of Taroslau. Thirty otherwise healthy soldiers became affected, and showed the typical combination of night-blindness with conjunctival xerosis. The complaint disappeared without any treatment, 2—3 weeks after the onset of rainy weather. Hand thinks that exposure to strong sunlight in the spring, after the dark winter days, was chiefly responsible for the outbreak of the small epidemic.

C. MARKUS.

Blanco (Valencia).—Lens-measurement in practice. (*La facometria en la practica oftalmologica diaria.*) *Archivos de Oftalmologia Hispano-Americanos*, Abril, 1905.

For determining the strength of a lens, Blanco recommends that we should compare the degree of deviation of crossed or parallel lines, when seen through the lens to be tested, with that occasioned by a series of lenses of known strength, until we find one which gives an equal deviation. By such means it is easy also to determine the optical centre of a given lens.

HAROLD GRIMSDALE.

Vogt.—Experimental and clinical investigation of the action of aniline dyes upon the eye. (*Weitere experimentelle und klinische Untersuchungen ueber den schädlichen Einfluss von künstlichen Anilinfarben auf das Auge.*) *Zeitschrift für Augenheilkunde*, Feb.-März, 1905.

Vogt discusses the chemistry of these aniline bodies and describes in detail a large number of experiments and clinical cases. His principal conclusions are:—the action of these bodies upon the conjunctiva and deeper structures of the eye varies according to the chemical composition of the substance used, namely, acid, neutral, and mordant dyes, as also those that are insoluble in water, cause none, or very little, inflammation. Basic dyes, on the other hand, cause severe inflammation which may go on to panophthalmitis. The virulence of the basic dyes depends primarily on the intensity of their basic nature, and not upon the nature of the acid; and, secondarily, upon the solubility of the substance in the fluids of the eye, the more soluble being

the more harmful. Experimentally it has been found that washing out the conjunctival sac with a 5%–10% solution of tannin, within 3–5 minutes of the introduction of the dye, renders even the most virulent quite innocuous : tannin forming an insoluble compound with all these substances, and the flow of solution removing this.

A. LEVY.

Stirling, J. W.—Bilateral amaurosis following severe haemorrhage after extraction of a tooth. *Ophthalmic Review*, August, 1904.

An anaemic-looking boy, aged 5½ years, was brought to the Montreal General Hospital with the following history.—Two years before a tooth was extracted, and this was followed by uncontrollable haemorrhage which lasted for three or four days, during which time he nearly died. On recovering consciousness the vision was entirely lost, but in two weeks it returned to a slight degree. Little or no change had taken place since. Excessive bleeding had taken place in this patient from a slight injury to the head. The child was evidently a haemophiliac. The vision was fingers at 6 inches with each eye, and the fields were contracted to 15° or 20°. There was no colour vision, and the pupils were dilated and almost immobile. The discs were white, with partial atrophy secondary to neuritis.

C. D. M.

Agnostino.—Late manifestations of hereditary syphilis.
(*Manifestazioni oculari tardive di sifilide ereditaria.*)
La Clinica Oculistica, Marzo, 1905.

Agnostino's patient, at the age of 38 years, was the subject of loss of vision affecting the left eye ; the right had been defective from childhood. Examination with the ophthalmoscope showed that there was a large peripheral area of choroidal atrophy. The macular region was normal, but the disc was pale and the vessels, reduced in size, were accompanied by two white lines, which seemed to reduce the lumen of the arteries. Antisyphilitic treatment was followed by recovery of vision and disappearance of the vascular changes, the coats of the arteries seeming to regain their normal condition. The diagnosis of hereditary syphilis seemed certain on account of the other stigmata which the patient presented. It is interesting to note, further, that for some time before the treatment was begun, the man had suffered from loss of memory and disability to work mentally, as if the cerebral vessels shared in the disease which was seen in the eye ; while with the improvement of the ocular vessels, an improvement in these functions also was found.

HAROLD GRIMSDALE.

Galezowski, J.—Toxic amblyopia due to copper. (Amblyopie toxique occasionnée par le cuivre.) *Recueil d'ophtalmologie*, octobre, 1905.

Copper has been shown to be capable of producing symptoms of general systemic disturbance, and there are no *a priori* reasons why it should not affect the nervous system, and particularly the optic nerve. Galezowski has not been able to find any record of a case of toxic amblyopia due to the salts of copper. The author's case was that of a man, 57 years of age. He complained that his sight had been defective for seven years, and was inclined to get worse. Central vision was markedly defective. R. V. = 1-10th, by eccentric fixation only. No absolute scotoma for white or colours. On the left side there was an absolute scotoma, for white and colours, of 10° — 15° . Outside the scotomatous area colour vision was good. There was no abnormal change in the fundus beyond a slight temporal pallor of the left disc. Pupil reflexes normal; general health good; urine normal. He had never been a heavy drinker or smoker, and had given up wine and tobacco entirely when his sight began to fail. Further enquiry elicited the fact that he had had colic pains some years previously. His hands were impregnated with a greenish-black metallic substance, and the upper central incisors were covered, near the gums, with a greenish substance, and there was a faint greenish reflex from the whole surface of the incisors and canines. The patient played on a copper instrument in a band, and it was surmised that the copper got into his system through contact of the mouth-piece with the lips, and through the skin of the hands during the manipulations of playing and cleaning the instrument.

J. JAMESON EVANS.

Coppez, H.—A case of elephantiasis of the face and hairy scalp. (Un cas d'éléphantiasis de la face et du cuir chevelu.) *Bull. de la Soc. belge d'Ophtalmologie*, No. 17, 1905.

Coppez's patient, a man aged 21 years, gave a family and personal history of tuberculosis. When about four years of age, a tumour of the hairy scalp, diagnosed as a diffuse lipoma, was operated upon. When examined by Coppez, the right upper eyelid was hypertrophied and dropping. The orbito-palpebral fold was practically obliterated. A translucent cord started from the limbus of the right eye and passed backward out of sight beyond the equator. A number of lymphatic cysts were present in the outer part of the inferior conjunctival cul-de-sac. The right temporo-malar region was augmented in volume, and so was the whole of the right side of the hairy scalp. A patch of pigmented skin existed on the right side of the back of the

neck. At this spot a series of cords could be felt, reminiscent of a plexiform neuroma. Coppez makes the provisional diagnosis of elephantiasis fibromatosis.

S. S.

Luthmer, Konrad.—What advice should the oculist give to a patient who has been struck blind? (*Welchen Rat soll der Augenarzt dem von der Erblindung betroffenen Patienten erteilen?*) *Wochenschrift für Therapie und Hygiene des Auges*, 14 Dezember, 1905, and 21 Dezember, 1905.

In an article of considerable length, which recalls in some respects the writings of Javal under similar circumstances, Luthmer—who, however, was struck blind early in life—discusses the answer to the terrible question “What next?” He points out the great difficulties of the position of the blind person, his tendency to feel helpless himself and to appear helpless to others, and the probability of his life being spoiled for want of a correct answer to the question “What next?” A great deal depends upon the previous education and the position in life, and also upon the time of life and the completeness or incompleteness of the blindness. Too often the oculist does not know how to answer the question, and yet, although his professional work is finished, he should try, if on merely humane grounds, to give an answer.

After discussing various points in the education of the blind at blind schools, the writer passes on to show how much can be done by anyone blinded in adult life if he only possess the necessary will-power, and more especially if he be fortunate enough to have a faithful wife or daughter. Let him learn to go about alone if he has ability even to distinguish light from dark. Above all things let him try to earn a living and be well employed. So far as possible, let him stick to his original occupation. In many cases this can be done with assistance from the sighted. If a bachelor he should not engage a female housekeeper, who will snatch the control from him if she can. He should beware of eating and drinking too much. The greater number of the well-to-do who become blind succumb to apoplexy from over indulgence in food, drink, and sleep.

Luthmer's occupation only differs in detail from that which he formerly followed. He rides a tandem tricycle, writes in two languages, plays the fiddle and sings, travels about from place to place, and swims in summer and skates in winter. But to learn all this requires undoubtedly a great effort of will.

“The oculist can certainly do much good by his advice, and to him I turn and beg that he will try to realise how heavily his want of knowledge recoils upon his blind patients. Let the

oculist harden his heart and say to his patient 'my work is done, you are blind, and remain so'; let him say he has no advice to offer in relation to the terrible question 'What next?'; then let him not be surprised that his patient should seize a revolver and make end of his afflictions."

ERNEST THOMSON.

REVIEW.

Ueber dem Heilwert der gelben Augensalber. Von Dr. GELPKE, Karlsruhe. Halle, a. S.: Verlag von Carl Marhold, 1906. Preis 1 Mark, pp. 30. **The Therapeutic Value of Yellow Ointment.** By Dr. GELPKE, of Karlsruhe. 30 pp., with a plate; price one shilling. Halle. 1906.

Yellow ointment is to be seen on the desk or table of every ophthalmic surgeon and is in constant use, yet no one seems to have investigated its composition and mode of preparation with care, nor to have attempted to explain why it is successful in some cases, and not only useless but harmful in others. Dr. Gelpke has undertaken this task, and his results are contained in this pamphlet. He first set himself to determine such a mode of obtaining the oxide of mercury that it should be free from gritty or crystalline particles, that it should be of constant composition, and that it should be capable of equable diffusion through oily or fatty substances. Dr. Gelpke found that these characters had already been secured by Herr Vulpius, a pharmaceutical chemist, who obtained the oxide by precipitation of corrosive sublimate with soda lye, and subsequent washing with water till all trace of the chloride had disappeared and a pap was left consisting of 25 per cent. of mercury oxide and 75 per cent. of water. This pap Vulpius rubbed up with 200 parts of alapurin (*adeps lanæ purissimum*) or wool fat and 600 of the best white viscous American vaseline, the mixture then containing 50 parts of water. This combination Dr. Gelpke recommends as being far superior to the butter, lard, or cold cream hitherto used. He points out that wool fat has the property of emulsification with water, and therefore of mixing well and thoroughly with a precipitate that is wet from being thrown down from a watery solution, and also that it does not, like other fats, become rancid owing to their decomposition into glycerine and the fatty acids, but yields, on exposure to air and light, cholesterine and esters. Having satisfied himself that Vulpius' is the best form of the "yellow ointment" that can be obtained, he proceeded to test its utility. Two actions are attributed to it, *viz.*, an antiseptic and an absorbent. Only two series of observations are extant on its antiseptic action. One of them

was made by Weeks, the other by Bach, and, unfortunately, the results of these researches are contradictory. Dr. Gelpke therefore set himself to determine the degree of antiseptic action the ointment possessed as compared with sublimate vaseline (1-10,000), hydrarg. oxycyan.-vaseline (1-5,000), and several others. The experiments showed that it possessed some, but not very complete, inhibitory influence over the development of the staphylococcus pyogenes aureus, yet nothing approaching the antiseptic power of the two above-mentioned agents. Dr. Gelpke next very carefully examined yellow ointment, in regard to the distribution of the particles of the oxide, under the microscope after being kept some months and after being exposed to the light or kept in darkness, and the disposition of these particles is shown in the plate that accompanies the pamphlet. He strongly recommends that it should be kept in black vessels. In regard to the absorbent action of the ointment, he acknowledges that it is difficult to arrive at any exact conclusions. Dr. Gelpke then takes its therapeutic action into consideration. It is, in the first place, to be regarded as an irritant; hence it is a remedy that should not be used in acute inflammatory affections accompanied with great pain, lacrymation, and photophobia; on the other hand, it proves of great service in torpid conditions of congestion, when, if the ointment has been properly made, it stimulates the nerves supplying the atonic musculature of the lids. He considers the special pathological condition that is present in the latter class of cases to be the dermatosis included by Unna under the name of seborrhœic eczema. It should be carefully discriminated from the ulcerating form of blepharitis, and is recognised by its moist aspect and tendency to form crusts and by occurring chiefly in children. In these cases the ointment is most serviceable, whilst in the ulcerating form we have a furuncular or impetiginous affection often leading to loss of substance and deformity of the borders of the lids, for which condition yellow ointment is wholly inapplicable. In such cases, the parasitic origin of the disease must be taken into consideration, and specific anti-bacterial remedies employed. The lids should be carefully cleansed, cilia having a collection of pus at their bases removed, and preparations such as protargol, ichthylol, and zinc and ichthylol used. Yellow ointment, made as above, is not, as a rule, an appropriate remedy, and it is absolutely contra-indicated in all acute affections of the cornea, and its application is of doubtful utility in cases of long-standing pannus, and still more doubtful in acute affections of the sclera, although it may sometimes prove useful in cases of episcleritis.

HENRY POWER.

NOTES AND ECHOES.

Appointments. JOHN R. ROLSTON has been appointed honorary Ophthalmic Surgeon to the Royal Irish Female Orphan Asylum at Devonport ; Annie T. Barnard, Refractionist to the Royal Eye Hospital, Southwark, London ; Giuseppe Albertotti, of Modena, to the Chair of Ophthalmology in the University of Padua ; and A. Bielschowsky Professor of Ophthalmology in the University of Leipzig.

* * * * *

The Bowman Lecture. DR. EMIL JAVAL having been compelled by the state of his health to decline the proffered honour of the Bowman Lecture-ship for 1907, Professor Sattler has been asked to accept the blue ribbon of British ophthalmology. It is to be hoped that the distinguished Leipzig Professor will see his way to accept the distinction that has been thus offered to him.

* * * * *

Dr. Mules's Will. THE *Daily Mail*, of May 10th, last, under the somewhat flippant heading of "Other people's Money," gave £28,253 8s. 6d. as the amount of the Dr. P. H. Mules's estate. It spoke of our late colleague as "the well-known ophthalmic surgeon who first performed what is now known as the 'Mules' operation' for the removal of the eyeball," a description of surgical fact that is something more than merely creditable for a lay journal.

* * * * *

British Medical Association. The section of ophthalmology at the Toronto meeting of the British Medical Association, although well provided with four subjects for discussion, is poor as regards the number of papers so far announced. Of the latter the list includes three by a distinguished Glasgow and one by a London ophthalmic surgeon. It is hoped that more original communications will be forthcoming, if not from this side of the water at all events from the other.

* * * * *

Amalgamation of London Medical Societies. THE Council of the Ophthalmological Society after a careful and deliberate examination of the plan, has decided to recommend its members not to adopt the scheme outlined for the union of the London medical societies.

It is difficult to see what other advice they could well have given. As pointed out in these columns some months ago, there are objections of a serious nature, financial and otherwise, to the scientific millennium foreshadowed by the Medical and Chirurgical Society of London. It is significant that two of the largest and most influential of the London special societies—the Ophthalmological and the Society for the Study of Disease in Children—have practically declined to have anything to do with the scheme in its present form.

* * * *

**Curious Accidents
to the Eye.**

A COUPLE of curious professional accidents to the eye have been recently reported in the medical press. In the first case the accident took place in connection with the extraction of a tooth by Dr. Richards, a practitioner residing near the Welsh village of Craig-y-Nos. The operator broke off a small portion of the patient's tooth, and the septic fragment lodged in the surgeon's eye, with consequences that may be better imagined than described. The second accident (not less curious in its way) happened to a Greenock practitioner, and resulted from the breaking of a tube containing vaccine lymph. A particle of the glass entered the surgeon's eye, which speedily showed all the signs of a successful vaccination.

* * * *

Obituary.

A TRAGIC circumstance marred the conclusion of the Lisbon Congress. While reading a paper, listened to with much interest by his colleagues, the well-known Spanish ophthalmologist Mascaro, of Lisbon, was suddenly seized with a fit and died the same day without recovering consciousness.

* * * *

MEDICAL agitation grows apace against **The Optician Question.** the Opticians' Sight-testing Bill, read for the first time in the House of Lords on April 5th. No date has yet been fixed for the second reading of this Bill, which constitutes a barefaced attempt to create by Act of Parliament an order of medically unqualified practitioners. There appears to be, however, small likelihood of this pernicious measure passing into law during the present session, since the two sections which claim to represent the optical trade (the Spectacle Makers' Company and the British Optical Association) are at variance, there are financial difficulties connected with the promotion of the Bill, and last, but not least, the legislative

agenda-sheet is full to overflowing with much more important, although scarcely less contentious, business. In the meantime, the following memorandum, drawn up by a joint committee of the British Medical Association and the Ophthalmological Society, has been circulated among those likely to be interested in the questions involved :—

MEMORANDUM.

BILL FOR THE STATE REGISTRATION OF "SIGHT-TESTING" OPTICIANS.

BRITISH MEDICAL ASSOCIATION AND OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

MEMORANDUM.

Bill for the State Registration of "Sight-Testing" Opticians.

The British Medical Association and the Ophthalmological Society of the United Kingdom consider that in the public interest the attention of Members of both Houses of the Legislature should be drawn to important objections to the Bill which, it is understood, the Spectacle Makers' Company and other bodies acting in the interests of certain sections of opticians, are promoting, and which has been introduced by Lord Addington in the House of Lords.

The British Medical Association and the Ophthalmological Society approve of any measures which would increase the efficiency of opticians in their technical work of manufacturing spectacles and other optical instruments, but the Bill in question proposes to create a new class of specially-privileged persons to carry on a certain branch of medical work, namely, the testing of eyesight, which is defined in the Bill as meaning "the science of measuring the refraction of the eye and the adaptation of lenses for aiding defective eyesight."

Persons registered under the proposed Bill would be endowed with special privileges, such as the right to use titles implying that they are qualified to "practise sight-testing and testing sight," and to charge and recover fees for such practice.

It is submitted that such enactments would be misleading and dangerous to the public, inasmuch as it would be thereby suggested that persons who have not had a special medical and surgical training are competent to advise upon and treat

defects of vision, many of which, being due to constitutional diseases, cannot be detected by sight testing or corrected by the use of glasses.

The objections to the Bill may be summarised under the following heads :—

1. The eye, not being a separate optical instrument but a living and inseparable portion of the human body, shares its diseases, and consequently defects of vision are so frequently connected with conditions of local and general disease that their meaning and nature can only be properly ascertained and treated by persons who have received a medical and surgical training.

2. The Bill in question rightly proposes that persons registered thereunder shall not be permitted to use drugs having the effect of paralysing the accommodation of the eye, the promoters of the Bill recognising that the use of such drugs by persons who have not had a full medical and surgical training is fraught with grave danger to patients. But it must be pointed out that persons requiring to be placed under such a restriction are thereby disqualified for testing the sight in those numerous cases in which this method of examination is necessary.

3. The defects of vision which can be remedied by the use of spectacles frequently occur in conjunction with diseases of the eye which require other means for their detection and treatment. These would certainly be overlooked by non-medical persons whose attention is directed solely to the provision of glasses.

4. Failure of sight is often the first symptom of grave general disease, and if such a condition is treated merely as a visual defect by an optician, the actual disease will be unrecognised, and grave, or even fatal, consequences to the patient ensue.

For these reasons the British Medical Association and the Ophthalmological Society consider that the Bill referred to should not in the public interest be allowed to pass into law.

May 1st, 1906.

Illegal Ophthalmology.

THE optician question appears to be looming large in countries other than England and America, if we may judge from the fact that the Paris Ophthalmological Society has recently endorsed Dr. Péchin's conclusions with regard to the illegal practice of ophthalmology. They run as follows :

- I. Any person not possessing the diploma of a doctor of

medicine who prescribes convex, concave, cylindrical, or spherocylindrical glasses by any of the methods employed for testing refraction, shall be considered as practising medicine illegally. 2. It is prohibited to practise ophthalmology either anonymously or under any impersonal appellation, such as "American oculist." Moreover, the Paris Society approves all measures proper to the repression of the illegal practice of medicine in general, measures which apply equally to the illegal practice of ophthalmology.

* * * *

**Société française
d'ophthalmologie.**

THE French Ophthalmological Society held a most successful congress in Paris in the earlier part of May. The proceedings

began unofficially by a "punch" given by the Paris Society to their colleagues of the French Society. The function took place *chez Marguery* on the Bvd. des Bonnes-Nouvelles, and visitors found some difficulty in reaching that hospitable restaurant on account of the streets, crowded as they were, with military and with excited politicians interested in the results of the elections. General regret was expressed at the absence, through illness, of Dr. Rochon-Duvigneaud, President of the Paris Society. Formal business included a discussion on Ocular Arterio-Sclerosis opened by Professor Rohmer, of Nancy. A communication by Drs. Chevallereau and Polack, upon tattooing the cornea in colours, attracted a good deal of attention. Patients treated in that way were shown, and several rabbits were brought to the meeting whose corneæ had been tattooed in all the colours of the rainbow. A letter from Dr. Lucien Howe, of Buffalo, led to a discussion upon the advisability of allowing members to compound their annual subscription to the Society by paying a lump sum down. It was resolved to adopt this principle, common in most other societies. At the official luncheon on May 7th, a cordial welcome was extended to the foreign members of the Society, to which Professor Hirschberg and Mr. Sydney Stephenson responded in a few well-chosen words.

* * * *

The University of Oxford. THE modern medical activity of the University of Oxford is shared in to the full by the Department of Ophthalmology under the control of Mr. Robert W. Doyne, the popular Margaret Ogilvie's Reader in Ophthalmology. A reference to our advertising columns will show that the third annual course of post-graduate instruction in ophthalmology will begin on July 9th

next, and extend over a period of about a fortnight. The syllabus is complete enough to satisfy the most hungry student. It includes formal lectures, demonstrations, and the practical examination of patients at the Eye Hospital. The lecturers will include, amongst others, Professor Osler, and Messrs. Nettleship, Coats, Frost, Lawford, Stephenson, Cross, Priestley Smith, Collins, and Parsons. A feature of the Oxford meeting, that will perhaps appeal more closely to the readers of THE OPHTHALMOSCOPE, is the invitation extended to ophthalmic surgeons by the Reader in Ophthalmology. It is thought that some surgeons may like to take the opportunity of seeing the large number of interesting cases that will be brought together for the course, and with that idea in mind these cases will be reserved for the Monday (23rd), and Tuesday (24th) following the post-graduate course. Demonstrations upon some of the newer methods of investigation, including the opsonic index and the coagulability of the blood, will be arranged. Beds will be placed at the disposal of surgeons who wish to demonstrate any novel methods of operation or treatment. Those who desire to attend will be lodged and boarded in Keble College at the trifling rate of 7s. 6d. *per diem*. They will dine in company in the College Hall; parties will be arranged to guide them to the various Colleges; and arrangements will be made for their entertainment on the river. A launch will be chartered for those who care to return to London by river. Any ophthalmic surgeon desirous of accepting this generous invitation should communicate without delay with Mr. Doyne, at 34, Weymouth Street, London, W.

The Royal Eye
Hospital, Southwark.

AT last a really serious attempt is being made to turn to useful purpose the enormous number of out-patients who seek advice annually at the Royal Eye Hospital, Southwark, London. A well thought-out scheme of instruction in ophthalmology was inaugurated on April 30th, by a lecture delivered by Sir William J. Collins, who took as his subject the study of ophthalmology. The systematic course of instruction in the evenings will be conducted by Messrs. Brooksbank James, Arthur W. Ormond, and Willoughby Lyle. The course will extend over the months of May, June, and July. The senior members of the staff will deliver special lectures, and give clinical demonstrations. Further particulars may be obtained from the honorary secretary, Mr. A. W. Ormond, at the Hospital.

A New Society.

FROM France we hear of the proposed formation of a new ophthalmic society to be known as the "*Syndicat général des Oculistes français*." This is to be of a medico-ethical nature, and to have for its objects :—(a) to maintain professional dignity and fellowship among its members ; (b) to prepare in co-operation with public bodies or competent authorities general measures to deal with such matters relating to medicine or public health as come within the scope of ophthalmology ; (c) to use all lawful endeavours to secure the enforcement of the resolutions adopted at its general meeting ; (d) to defend the professional interests of its members. The immediate cause of the formation of the Syndicate is the lowness of the fees payable in accordance with French law by masters for attendance on workmen suffering from injuries to the eyes received in the pursuit of their occupations. These are fixed by a scale (*Tarif Dubief*) which was published officially in October, 1905, and cannot be altered for two years, but it is hoped, by united action, to obtain its revision at the end of that period, and in the meantime to prevent its being accepted as a standard. We wish our French confrères every success in their effort to maintain and to improve their professional position.

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TWO NEW OPERATIONS FOR TRICHIASIS.

BY

T. HARRISON BUTLER, M.D. (OXON),

ASSISTANT SURGEON TO THE BRITISH OPHTHALMIC HOSPITAL, JERUSALEM.

In many cases of trichiasis seen in the East there is no marked entropion, but only a localised tuft of lashes growing internally to the normal row. These bunches contain from 5—10 long cilia, which sweep the cornea and cause great discomfort. These small tufts are generally found in the centre of the upper lid, or at the outer canthus, but they may also appear at the inner canthus.

For the centrally placed bunches I have for some time performed the following operation, which has proved very successful. The lashes are carefully cut short on both lids, and the latter are well washed with soap and water, then rubbed with absolute alcohol, and, finally, with a solution of biniodide of mercury or sublimate 1-500, care being taken that none of the fluid enters the eye. The upper lid is seized by Grady's forceps and everted. The tuft of lashes is then excised by two curved incisions, which meet deep in the tarsus. A wedge-shaped, fusiform piece of tissue is thus removed, which includes the misplaced lashes and their root-follicles. The cuneiform wound is now carefully examined with a lens, to ascertain that no root-follicles have been left in the inner lip of the wound, and that none of the normal lashes have been deflected inwards. Should any be found, they are removed with scissors. The lower lip is then everted, firmly seized between the thumb and fingers, and a fusiform piece of the mucous membrane rapidly cut with a pair of sharp scissors curved on the flat. With a little practice this graft can be cut, so as to fit the lid-wound accurately.

The blood clot is now wiped from the lid-wound, and the lip-graft adjusted in place. The graft should be firmly held in place till the blood has coagulated under it, and firmly luted it in its place. The lower lid should be well greased with boric vaseline, and a piece of well greased oil-silk used as a dressing. This precaution is to prevent the graft adhering to the dressing or to the lower lid.

Next day the graft will be pink, and in two days its presence can barely be detected. The eye should be dressed for four days to prevent the graft drying up, an accident which happened to two or three of my fresh cases. The operation is so trivial that no anaesthetic is necessary. I have not found that the injection of cocaine has diminished the slight pain caused by incising the tarsus. Perhaps acoine might be more efficient. The lip wound does not require a suture. In some of my cases one or two lashes have reappeared in their false position, probably owing to imperfect *technique*; but in some of these failures no doubt lashes had been epilated, and their follicles consequently left on the inner side of the split. If lashes have been epilated the operation should be postponed until they have grown again.

When the bunch of misplaced lashes is situated at either canthus, I have found a modification of Spencer-Watson's operation most successful. The original operation has a cardinal fault, because a piece of skin is placed internal to the lashes, and in a very short time the hairs in the skin hypertrophy and thus cause as much irritation as the original lashes.

I have performed Waldhauer's modification of the Jaeschke-Arlt operation several times, placing a skin graft in the split in the lid. Practically all these cases have relapsed, and I have had to remove the skin graft and replace it by a lid graft. Not only do the skin hairs hypertrophy, but the skin itself gets broader and the lashes get pushed up towards the eyebrows! For these two reasons I believe that all skin grafts and transplantations of skin are useless in trichiasis. To avoid these bad effects, I have modified Spencer-Watson's operation as follows.—The outer (or inner) part of the lid is seized with Grady's forceps and split for from 8-10 millimetres from the canthus inwards. The very greatest care must be taken that the split is internal to all the falsely-placed cilia, a lens being used to detect any stumps. The split is deepened for 2.5 mil-



FIG. 1.

metres, and then with a pair of scissors, the lower flap is separated, as shown in Fig. 1. It may be 2.5 millimetres broad. The lower flap bearing the lashes is best cut with a square end. The skin flap is cut exactly as in Spencer-Watson's operation, but its base must not exceed 3.5 mm. across, or an exaggerated effect will be produced.

The lower flap is now sutured into the space left by the skin flap by two or three points of silk. The skin flap is truncated, the part shown shaded in Fig. 1 being amputated. The base is sutured under the lash-bearing flap, as shown in Fig. 2.

At this stage in the operation, a triangular space is left, which in the original Spencer-Watson operation would have been occupied by the skin flap. This space must now be filled by a triangular piece of mucous membrane cut from the lip, exactly as described in the first operation.

The case must be dressed, as in the first operation, with greased oil-silk.

The results of this operation have been almost uniformly successful. The truncated skin flap holds the split open, and so the lip graft cannot be squeezed out ; it is, however, too short to



FIG. 2.

come into contact with the eye, and so it causes no trouble from skin hairs. If any lashes reappear, they have probably grown from stumps overlooked in making the split. They can easily be removed by the method described in the first operation.

THE USE OF ADRENALIN IN SPRING CATARRH.

BY

HAROLD GRIMSDALE, M.B., B.C., F.R.C.S.

SURGEON TO THE ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, AND
ASSISTANT OPHTHALMIC SURGEON TO ST. GEORGE'S HOSPITAL, LONDON.

When first, some years ago, the various extracts of the adrenal bodies were introduced into the armamentarium of the ophthalmic surgeon, much was expected from their employment. Now that some time has elapsed, we are able to see their value in better perspective, and it is clear that the praise which was lavished on adrenalin, hemisine, etc., as cure-alls for conjunctival ailments, was exaggerated.

There is now, perhaps, a tendency to limit the use of these drugs too narrowly ; to employ them, in fact, only as hemostatics

at the time of operation, when we are dealing with some delicate procedure on the muscles or other structure, in the course of which haemorrhage, even slight, would be a serious obstacle to the perfect accomplishment of the task. This is, probably, the most valuable of all the properties belonging to these substances, but there is one disease in which they appear to have a really specific action, and although this fact has been pointed out by several observers, including Darier, it does not seem to have become generally known.

That disease is Spring Catarrh. The treatment of this condition, apart from the use of adrenalin, is most unsatisfactory ; even the slighter forms linger on for years, the vegetations which affect the conjunctiva covering the tarsus being scraped, cauterised, and otherwise maltreated, until the conjunctiva is left permanently scarred, when at last the disease ends, either yielding to the energetic measures adopted, or coming to a natural conclusion. It seems, therefore, justifiable to call attention once again to the action of adrenalin in this connection, and in so doing I can, as has been already said, claim no originality, although the discovery, so far as I am concerned, was original, in that I had not read of the success of others in this direction at a time when theoretical reasoning led me to try the remedy.

Nor would it appear that others are more familiar than myself with this valuable therapeutic property. In the last volume of the *Transactions* of the French Ophthalmological Society (for 1905), there is a paper on Vegetating Tarso-Conjunctivitis, in which adrenalin is nowhere mentioned, the treatment being said to consist locally of excision of the vegetations, curetting, cauterisation with the galvano-cautery, instillation of antiseptic collyria, and massage with yellow ointment. In addition, the patient took internally cacodylate of soda, glycero-phosphate, and tonics.

This list alone shows that other treatment is unsatisfactory, and taking into consideration the troublesome nature of the symptoms, the intolerable itching of the palpebral form, and the additional disfigurement of the ocular form, any remedy which seems to have specific power cannot be too widely known and tried.

Perret, of Hartennes, seems to have been the first to call attention to the therapeutic action of adrenalin in spring catarrh. His paper is to be found in *La Clinique Ophthalmologique* for January 10th, 1901. He points out that the disease is primarily a purely vascular affection, and therefore one which should be, theoretically, amenable to treatment by means of drugs which act on the blood-vessels. If we can, he says, reduce the

vascularity of the conjunctiva permanently, we should see the symptoms recede and the lesions diminish. The secretion will cease, the redness will fade, the pricking and sensations of heat will disappear. This happy result Perret has obtained in several patients by the use of adrenalin. As regards the pericorneal vegetations, they also will vanish by slow degrees; he is less certain about the tarsal masses; in his cases they remained little modified, but more prolonged use might influence even these.

After this paper, similar observations were made by Schnaudig on the value of adrenalin in this disease, and although Darier mentions it in his well-known "*Leçons*," curiously little attention has been paid elsewhere to this point in practical therapeutics.

The first case in which I made use of adrenalin was a child H. W., aged seven. The following is a short history of the case:—

She was sent to me in August, 1900, and I was told that she had been suffering from "granular lids" for two years. The left eye was alone affected; she had lived in Australia all her life and had only recently come to England. The eye had been treated in Australia by astringents, especially by silver nitrate, but there had been no improvement. There was slight discharge, and very great irritation.

When I examined the child, I found her apparently healthy, except for the condition of the left eye. The upper cul-de-sac of the conjunctiva and the surface of the tarsal cartilage of the upper lid were thickly covered by fine papillary granulations. There were no large sago-grain bodies, and the cornea was absolutely normal: there were no vessels running into it nor any sign of opacity. L.V. 6/18. The right eye was unaffected—the conjunctiva was perfectly healthy, both in its palpebral and ocular parts. R.V. 6/9.

The case seemed to me one of trachoma of an unusual character—unusual because one eye was affected alone, and the disease in that eye was limited to the conjunctiva, and had not attacked the cornea. Another somewhat unusual point was that, although there had been no precautions to avoid infection, none of the other children in the family had been attacked.

The treatment adopted was instillation of protargol in 10% solution, and frequent bathing with a weak solution of zinc chloride.

As there was no improvement in six weeks, I gave the child an anaesthetic, and attempted to express the contents of the granulations. At the same time I snipped off the most prominent of them. The result was at first good, but in a few weeks time the granulations reappeared. The structure of the

granulations had suggested to me that there might be a mistake in the diagnosis ; the parents, therefore, consulted another ophthalmic surgeon, who expressed the opinion that it might be tuberculous conjunctivitis, and advised further scraping. This was done, but experimental research did not show any evidence of tubercle. The disease showed no abatement, and there was another scraping operation in June, 1901. After that the lids remained a little less rough and the child seemed better ; nothing further was done actively, since I had gradually come to the conclusion that the disease was not trachoma, but spring catarrh of the tarsal type.

About the end of March, 1902, adrenalin chloride was ordered ; a minim of a 1 in 2,000 solution to be dropped into the eye three times a day. Early in June I noted that there was definite improvement under this treatment, and in October the note read, "Almost well." Six months later there was no return of the disease. The child went back to Australia, and the parents have since told me that she remains well.

The connection between the improvement and the use of the adrenalin seemed to me very probable (it must be remembered that at that time I had not come across Perret's paper on the subject), and I waited for another case in which to try the remedy. But before another presented himself, I read an abstract of Perret's communication, and was satisfied that there was a real specific power in the adrenalin. I therefore made use of it in every case of spring catarrh which came under my care. These are not very numerous, and were of the tarsal form. Only within the last six months did a case of the ocular variety present himself for treatment, showing well-marked circumcorneal masses. The following lines give a short history of the case :—S. R., a clerk, came to the Royal Westminster Ophthalmic Hospital about the end of July. He was aged 24, and had for ten years suffered from the presence of very large pericorneal masses, in appearance absolutely typical of spring catarrh. The disease was represented in the palpebral conjunctiva by the waxy infiltration, without any prominent papillæ. The subjective symptoms were of the usual kind, but not very severe in degree ; it was rather on account of the deformity that he came to the Hospital. He was accustomed to the seasonal alterations, but said that although the symptoms varied in degree, the ocular lesions were practically constant.

Knowing that in any case improvement would be slow, and wishing to give the drug a fair trial, I impressed on him the importance of steady use, and he, being desirous to be rid of the disfigurement at any cost, readily undertook to carry out the treatment regularly. This consisted of instillation of drops of a

1 in 2,000 solution of adrenalin chloride, and no other drug ; the drops were put in at first three times a day, and after a few weeks, every six hours. He was soon convinced that he was improving, some time before I could see any improvement. But about the end of September there could be no doubt that the pericorneal granulations were less.

He continued the instillations with commendable regularity, and now the ocular conjunctiva is practically normal in appearance, and the waxy infiltration has largely vanished from his palpebral mucous membrane. All subjective symptoms have ceased.

This man and the child mentioned above are firmly convinced of the value of adrenalin. The other cases which have been under my care were both very mild and were not long enough under the treatment to base much upon ; they seemed to improve, but the symptoms were never of such violence as to occasion more than slight discomfort. Is the relief likely to be permanent ? Judging from the case of H. W. there seems every reason to suppose so, and even if the disease relapse, it would seem probable that it could be again checked by adrenalin.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

A CASE OF RETINITIS CIRCINATA.

BY

ROBERT W. DOYNE, M.A., F.R.C.S.,

READER IN OPHTHALMOLOGY IN THE UNIVERSITY OF OXFORD; SURGEON TO THE
ROYAL EYE HOSPITAL, SOUTHWARK, LONDON.

The patient, aged 60 years, was first seen on July 20th, 1904, with the history that a month before, on getting up one morning, he noticed that the sight of the left eye was "queer," and that there was a kind of "fluttering" in the upper part of the field of vision of that eye. Three or four days afterwards, sight was seriously affected. He had had no pain. His vision was normal in the right eye, and $\frac{1}{10}$ in the left, and there were gross retinal haemorrhages beneath the left macular region. No disease of kidney or other organs was made out.

September 10th, 1904.—The haemorrhages had increased, and some of them showed signs of degeneration.

To illustrate Mr. R. W. Doyne's communication on
Retinitis Circinata.



Fig. 2.



Fig. 1.

December 20th, 1904.—There were still scattered haemorrhages in the macular region, but some had cleared, leaving "flecks" in the retina.

April 9th, 1905.—The following was the note made: "The macular area is very œdematosus and swollen more than ever, but there is very little recent haemorrhage, just a spot or two. Vision is worse, L.V. less than $\frac{1}{10}$."

June 11th, 1905.—Well-marked retinitis circinata (*vide* plate, fig. 1.)

July 16th, 1905.—Retinitis circinata appeared less marked.

October 31st, 1905.—Nearly all the retinitis circinata had disappeared; there were a few white spots, but no haemorrhages were to be seen (*vide* plate, fig. 2).

January 9th, 1906.—No haemorrhages and one white spot was all that remained of the retinitis circinata. Central vision entirely lost, including fixation and about ten degrees above.

Remarks.—Cases of clearing up of retinitis circinata have been reported before.* But there are some points of especial interest in connection with the present case. The development of the retinitis circinata was preceded by a swelling and a "muddy" condition of the macular region, at the edge of which the white spots, typical of the circinate condition, subsequently appeared. I have noticed this peculiar appearance, which I have described as "muddy," in other cases of this disease. In this case the observable haemorrhages had become much less before the retinitis circinata appeared, but it is quite possible, even probable, that the "muddy" condition which precedes or co-exists with the circinate changes, may be due to a deep choroidal haemorrhage. At any rate, it tends to prove (as suggested by R. M. Gunn and others) that the condition is not so much due directly to haemorrhage as to some considerable organic disturbance of the region, which may have been primarily excited by haemorrhage.

NOTE ON A CASE OF ALBUMINURIC RETINITIS SIMULATING OPTIC NEURITIS.

BY

RICHARD GOMPERTZ,

LATE HOUSE-PHYSICIAN TO THE EVELINA HOSPITAL, LONDON.

THE patient, a girl 9 years of age, was admitted to the Evelina Hospital, under the charge of Dr. J. Charlton Briscoe, to whom

* De Schweinitz.—*Ophthalmic Record*, February, 1903.

I am indebted for permission to publish these notes, on August 11th, 1905, complaining of swelling of the face and legs.

Family and Personal History.—The patient's father suffers from rheumatism, her mother is a healthy woman; she herself is one of five children, of whom one died, aged 6 months, of diarrhea, and the remaining three are strong and well. The patient has always been delicate, and since two years of age she has been subject to attacks of weakness and fainting. These attacks occur at irregular intervals about every two or three months, and last two or three days. In addition, she suffers from frequent headaches and vomiting; her appetite has never been good. She has never had any definite illness until now.

History of the Present Illness.—On August 6th the patient's mother first noticed that the child's feet were swollen and that her urine was very dark coloured; she was frequently sick, and complained of headache, but said that this was no worse than usual.

Condition on Admission.—The patient looked very ill, her face was pale and puffy, and there was considerable general oedema, most marked in the legs and back.

Her pulse was somewhat fast, with very high tension, and there was some thickening of the radial artery.

The area of deep cardiac dulness was larger than normal, and the apex beat very forcible; the first sound in the mitral area was prolonged and blurred, and both aortic and pulmonary second sounds were accentuated.

There were signs of fluid in the left pleural cavity, and some slight ascites was also present.

The urine was small in amount, 3vijj in 24 hours, and contained only 1·2% of urea; it was loaded with albumen (2·4%), and there were present many casts—hyaline, granular, and epithelial, together with a considerable quantity of blood.

There was obvious oedema of both optic discs, the vessels being obscured in their passage across and the edges of the discs being extremely ill-defined.

Progress and Treatment.—The patient was put on a restricted fluid diet, Oj. of milk being allowed daily, and was freely purged; diaphoresis was secured by the use of a hot-air bath daily. Under this treatment the general oedema quickly cleared up, and the fluid was absorbed from the pleura and abdomen; the albumen decreased to 0·75%, where it remained almost stationary till the patient's discharge on October 4th. The amount of urine passed rose to about 3xxv per 24 hours; but in spite of all treatment the blood persisted.

During the early part of September there was some return of the oedema; but this soon disappeared again.

On August 28th the eyes were again examined and appeared normal; but on measurement it was found that there were three dioptres of swelling of both discs; in the following week this had diminished to two dioptres, at which it remained during the whole of the patient's stay in hospital. No haemorrhages were to be seen in either fundus, the appearances of which were identical with those produced by intracranial tumour. Had it not been for the transient oedema, the case might almost have been considered as one of increased intracranial pressure, since optic neuritis, headache, and vomiting were marked.

TRANSLATION.

PIGMENTARY NÆVUS OF THE CHOROID.*

BY

DR. SEGALOWITZ,

FROM THE CHARLOTTE HOSPITAL, STUTTGART.

[Translated by PERCIVAL J. HAY, M.D.]

In April, 1904, we had the opportunity of making an ophthalmoscopic examination of a very curious case of abnormal pigmentation of the choroid. As we have not as yet met with any description of a similar case in the literature at our disposal, we think this one worth recording.

The patient M.E., aged 11 years, daughter of an office attendant in Stuttgart, came to us on April 23rd, 1904, complaining of short-sightedness.

On testing her vision, we found :—

$$\begin{aligned} \text{R.V.} &= \frac{5}{120} \text{ c.} - 4 \text{ D.Sph.} = \frac{5}{24} \\ \text{L.V.} &= \frac{6}{120} \text{ c.} - 4 \text{ D.Sph.} = \frac{5}{24} \end{aligned}$$

After retinoscopy :—

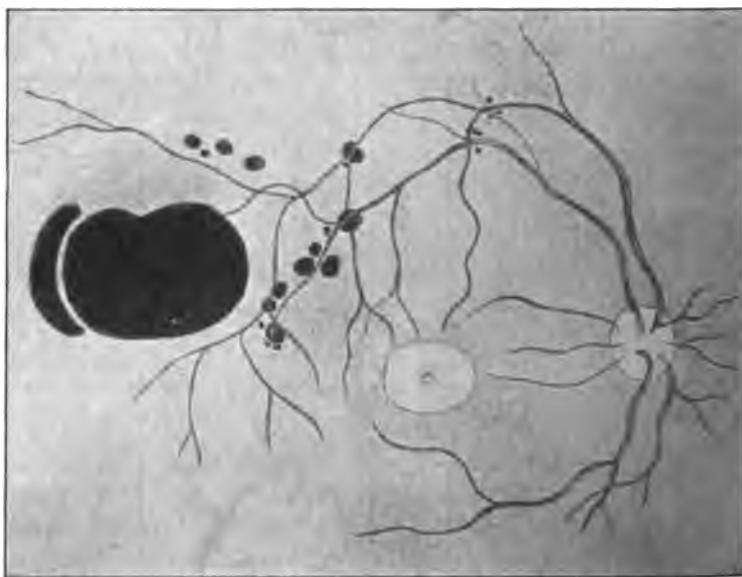
$$\text{R.V.} = \frac{5}{12} \text{ c.} - 2\frac{7}{5} \text{ D.Sph.} \bigcirc + 4 \text{ D.Cyl. ax. vert.}$$

$$\text{L.V.} = \frac{5}{4} \text{ c.} - 5 \text{ D.Sph.} \bigcirc + 4 \text{ D.Cyl. ax. vert.}$$

Upon examining the fundus, the following condition was found in the right eye (*see figure*). About four discs to the outer side of the macula and a little above there was seen situated in the choroid a large mass of deep black pigment, lying between two branches of the superior temporal vein and measuring about

* From *Die Ophthalmologische Klinik*, Mai 10, 1906.

three discs and a half in diameter. The superior temporal artery was running over it. It was of ovoid shape, with an indentation above, so that it resembled a bean. A short distance to the outer side of it, there was a second sickle-shaped pigmented area with the concavity turned towards the first, and in the neighbourhood there were 24 other smaller ones, placed close to, or underneath, the retinal vessels. Six of these spots were situated vertically above the macula at a point where the superior temporal artery or its branches crossed the superior temporal vein. Fourteen lay on the inner side of the large pigmented area, along or underneath the superior temporal artery and vein,



and four were found above this area near the superior temporal vein.

All of these accumulations of pigment are placed in the choroid, because the retinal vessels run over them. None of them show any signs of previous inflammation, as seen in choroiditis, nor are there any atrophic spots about them, nor do the vessels present any pathological changes. They can, therefore, only be regarded as congenital pigmentary anomalies of the choroid, an opinion which is strengthened by the fact that the child had a mole on the left side of her neck, one below and to the outer side of the left nipple, and another upon the left hip.

We were able to keep the child under observation and to examine her repeatedly. Vision became full after correction had been worn for some time. No changes occurred in the spots of pigmentation.

I wish to thank Professor Königshöfer for permission to publish the case.

NOVELTIES.

Dr. BERGER'S BINOCULAR LOUPE, with ELECTRIC LIGHT.

This loupe consists of two sphero-prisms with bases together, and placed in the hood at such an angle that magnified binocular vision is given at close range.



The present improvement consists in permanently attaching to the hood a small electric lamp, the light of which is condensed and directed so that it fully illuminates the field seen through the lenses.

The advantage of this construction lies in the fact that the light being unalterably fixed in the proper relation to the magnified field, and moving with it, the illuminated area and

field of vision are always coincident, and the examiner is relieved from the necessity of making any adjustments.

The small electric lamp may be operated by batteries, or, by means of the Vetter series current tap, it may be attached to the most convenient electric fixture, as shown in the accompanying illustration. The appliance is made by E. B. Meyowitz, 3, Rue Scribe, Paris, and the price is forty-eight shillings.

A SYMPOSIUM UPON CATARACT EXTRACTION.

Comment nos maîtres opèrent aujourd'hui la Cataracte.*

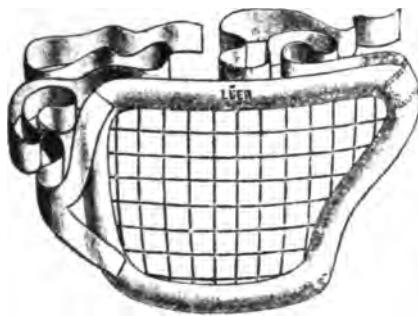
La Clinique Ophthalmologique, 25 mars et 10 avril, 1906

Addendum.

22. **Fuchs** (Vienna) carefully enquires into the condition of the conjunctiva, and especially of the lacrymal passages, and if there be catarrh of the lacrymal sac, extirpates that structure several days before he removes the cataract. He disinfects his hands in carbolic acid, 4%, or in sublimate 1 : 2,000. His instruments are boiled in sodium carbonate, 1%. The patient's eyelids, etc., are cleansed with soap, and afterwards irrigated with sublimate, 1 : 2,000. The conjunctival sac is washed out with sublimate, 1 : 4,000, or with 0·6% saline, previously sterilised by boiling. Local anaesthesia is secured by 5% cocaine, freshly prepared and recently boiled. After operation, the closed eyelids are covered with sterilised gauze and cotton wool, retained in place by means of a strip of linen, 4cm. to 5cm. in size, of which the two ends are fixed to the forehead and the cheek by plaster. Over all is placed a light metal framework (see fig.), the object of which is to prevent the patient from fingering the eye that has been operated on. With regard to the operation itself, Fuchs makes a section involving the upper quarter or third of the cornea with a Graefe's knife, and a conjunctival flap, about 2mm. in height. As large a piece of capsule as possible is removed by means of the capsular forceps. The lens is delivered by pressure, either with Daviel's curette or by the finger. Iridectomy forms part of the operation for all cataracts which possess a nucleus, and

* For former abstracts see THE OPHTHALMOSCOPE, March and April, 1906. -
EDITORS.

which cannot be removed by dissection or by simple linear extraction. Although extraction without iridectomy yields a round and mobile pupil, yet it entails many inconveniences, which necessarily limit its indications. For example, it renders extraction of the lens more difficult, and is accordingly contra-



indicated in cases where the lens is tremulous. Again, it should not be attempted when synechiae are present. Finally, in spite of the use of physostigmine, the simple operation entails a tendency to prolapse of the iris in the first few days after the operation.

23. **Haab** (Zurich) before operation, lays stress upon examining the urine, taking the temperature, and seeking for any focus of suppuration. Other precautions include a rigorous inspection of the conjunctiva and lacrymal passages, estimation of the ocular tension, and a careful examination of the other eye. The patient is given one or several baths, and his cilia are cut short and his eyebrows shaved. A "test-dressing" is applied the night before operation. Cocaine is applied to both eyes, and the field of operation, including the skin of the forehead, cheeks, nose, and eyelids is cleansed with hot water and soap, alcohol, and sublimate, 1 : 1,000. The conjunctival sac is washed out with sublimate, 1 : 5,000, or with sterilised saline. The patient's face is covered with sterilised gauze, leaving a hole for the eye and its immediate surroundings. Haab operates with the aid of one or two assistants, under good lighting, natural or artificial. He has a vessel filled with boiling water near him during the operation, in order to disinfect immediately any instruments that may be required on an emergency. He wears a respirator (*Mundschleier*). Haab gives the preference to the combined operation. He does not allow his patients to walk to their beds after cataract has been removed. Like Fuchs, he protects the eye by means of a metal framework.

24. **Schirmer** (Greifswald) adopts the precautions usual with

regard to the conjunctiva, lacrymal passages, and the state of the kidneys, lungs, and circulatory system. The eyelids and neighbouring parts are cleansed immediately before operation—first with soap and then with sublimate, and the conjunctival sac is flushed out with saline. Then, four drops of a 4 % solution of cocaine and one drop of adrenaline are instilled into the eye. The patient is covered entirely with sterilised linen, leaving only openings for the eyes. Schirmer wears a *Mundschleier*. Instruments are boiled in a solution of sodium carbonate. Knives, scissors, and curette, however, are placed for an hour in absolute alcohol, and then steeped in saturated boric acid lotion. Schirmer performs the combined operation, and washes out the anterior chamber with serum. He dusts the wound with iodoform, and keeps the dressing in position for a couple of days.

25. **Uhthoff** (Breslau) never operates upon both eyes at one sitting, but allows an interval of three to four days to elapse between the operations. When the sight of one eye is good, he does not touch the second eye except on the express request of the patient. With regard to preliminary operation, Uhthoff employs exceptionally iridectomy or Förster's trituration. Preparations for operation are of a most careful character, and include complete examination of the patient, functional investigation of the eye and of the lacrymal passages, estimation of the luminous sensibility, and analysis of the urine. When operation is decided on, it should, in Uhthoff's opinion, be undertaken as soon as possible. A bath is given, but this surgeon dispenses with the "test-dressing," and contents himself with disinfection at the moment of operation. The cilia are not cut unless they appear likely from their length to interfere with the passage of the knife. Uhthoff condemns the epilation of the lashes recommended by Schiotz. Diseased lacrymal passages receive careful treatment, but Uhthoff is not a partisan of removing the diseased lacrymal sac. It is useful, he thinks, after operation in such cases to fill the inner angle of the eye with iodoform. Local disinfection is carried out by means of hot water and soap and oxycyanide of mercury. The surgeon uses a veil if he has occasion to talk during the operation. General anaesthesia only in children and very nervous subjects. The patient's face is covered with gauze, having a hole cut for the eye to be operated on. With regard to the operation itself, Uhthoff makes a conjunctival flap, which he regards as an efficient protection against infection. Iridectomy, as part of the operation for cataract, has, in his opinion, more advantages than drawbacks. The capsule is opened by the cystitome, and according to this surgeon, the use of the capsular forceps is rarely indicated. Cortical remains are got rid of by the spatula,

for Uhthoff believes that massage through the lower lid is not devoid of danger, since the pressure may squeeze infective material from the glands of the lid and thus compromise the safety of the incision. The patient is allowed to walk to his bed with both eyes bandaged. As regards after-treatment, the bandage is changed 24 or 48 hours after operation, and one eye alone is then covered. Senile subjects and persons with asthma or cardiac mischief are kept in bed for one day only. The so-called "open" treatment advocated by Frohlich-Czermak, appears to Uhthoff to have few advantages. Secondary cataract is treated by the usual methods, generally by Knapp's knife-needle. Of 1,000 operations for cataract performed by Uhthoff, 934 were without complication and 66 complicated. Finally, it should be stated that the account of Uhthoff's methods, as published in *La Clinique Ophtalmologique*, is taken from a thesis by Abraham Aronoff, printed at Breslau in the year 1904.

26. **Axenfeld** (Freiburg) attaches importance to the bacterioscopic examination of any secretion that may be found in the conjunctival culs-de-sac, and refuses to operate for cataract until such time as all microbes have disappeared. In suspicious cases he makes a preventive injection beneath the skin of 10 cc. of Röhmer's anti-pneumococcus serum. He avoids adrenaline, as likely to predispose to secondary haemorrhage. In order to secure local anaesthesia, three drops of a 4% solution of cocaine are put into the eye at intervals of two minutes. He employs chloroform very seldom. To extremely nervous subjects potassium bromide or morphia is given. *Operation*.—Axenfeld employs Mellinger's speculum. He makes a narrow conjunctival flap. The capsule is opened by means of Wickerkiewickz's capsule-forceps. Axenfeld thinks that the cystitome, when the capsule is somewhat rigid, has a tendency to displace the lens upwards. The forceps, moreover, frees the cortical layers from the capsule, and by removing a considerable piece of capsule, renders secondary cataract less common. The cataract is extruded by alternate pressure of curette and spatula, of which the first is placed below the cornea and the second above the upper lip of the incision. Physostigmine is applied even when iridectomy has formed part of the operation, and care is taken to soak up any liquids that may remain in the conjunctival sac at the completion of the operation. Atropine is employed on the third day. Couching, preceded by preliminary iridectomy, has its indications, although exactly what these may be, Axenfeld omits to say. The article concludes with some remarks upon extraction of the opaque lens in cases complicated with synechiaæ after chronic irido-choroiditis.

SYDNEY STEPHENSON.

CURRENT LITERATURE.

NOTE. Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—REFRACTION.

- (1) Holth, S.—A new method of estimating ocular refraction. (*Nouveau procédé pour déterminer la réfraction oculaire.*) *Annales d'Oculistique*, T. CXXXI, p. 418, juin, 1904.
- (2) Gleichen, A.—A new theory of the shadow test. (*Neue Theorie der Schattenprobe: Skiaskopie.*) *Zeitschrift für Augenheilkunde*, Juli, 1904.
- (3) Wolff, H.—On the theory of skiascopy. (*Ueber die Skiaskopie-Theorie.*) *Zeitschrift für Augenheilkunde*, September, 1904.
- (4) Van der Bergh.—Subjective skiascopy. (*Skiaskopie subjective.*) *Ann. d'Oculistique*, T. CXXXII, p. 273, octobre, 1904.
- (5) Gleichen, A.—My theory of skiascopy once again. (*Noch einmal meine Skiaskopie-Theorie.*) *Zeitschrift für Augenheilkunde*, November, 1904.
- (6) Lagleyze.—A model to show errors of refraction. (*Refrácto-esquema.*) *Archivos de Oftalmología Hispano-Americanos*, Diciembre, 1904.
- (6A) Roth, A.—An astigmoscope. (*Das Astigmoskop.*) *Centralbl. für prak. Augenheilkunde*, Januar, 1905.
- (7) Lagrange, Felix.—The variations of corneal astigmatism with age. (*Les variations de l'astigmie cornéenne avec l'âge.*) *Archives d'Ophthalmologie*, avril, 1905.
- (8) Sherer, J. W.—Skiascopy. *American Medicine*, July 1st, 1905.
- (9) Lohnstein, R.—On a modification of the indirect image, and its use for the determination of the refraction. (*Ueber eine Modifikation des umgekehrten Bildes und ihre Verwendung zur Refraktionsbestimmung.*) *Zeitschrift für Augenheilkunde*, Juli, 1905.
- (10) Bronner, Adolph.—Notes on a case of emmetropia, in which distressing local and general symptoms had been relieved by the use of—I.D. spherical with—I.D. cylindrical glasses. *British Medical Journal*, August 26th, 1905.

- (11) Harman, N. Bishop.—*False hay fever.* *British Medical Journal*, August 26th, 1905.
- (12) Schouste, G. J.—A peculiar observation on the mixed astigmatic eye. (*Ein eigenaardigheid van het gemengd astigmatisch oog.*) *Ned. Tijdschrift voor Geneeskunde*, 1905, I, p. 192.
- (13) Lohnstein, Rudolf.—The estimation of refraction by means of the inverted image. (*Zur Refraktionsbestimmung mittels des umgekehrten Bildes.*) *Wochenschrift für Therapie und Hygiene des Auges*, 21 September, 1905.
- (14) Zeeman, W. P. C.—On the relation between the refraction and the refracting system of the eye. (*Ober het verband tussehen de refractie en het brekende stelsel van het oog.*) *Thesis for the Degree of M.D. Amsterdam*, 1905.
- (15) Borg, J. van der.—Statistics about astigmatism. (*Statistische mededeelingen ombrent het astigmatische.*) *Ned. Tijdschrift voor Geneeskunae*, 1905, I, p. 188, and *Thesis for the Degree of M.D. Amsterdam*, 1905.
- (16) Gonzalez, José de J.—Indications for the use of cycloplegics in the determination of errors of refraction. (*Indicaciones de los cicloplegicos en la determination de los vicios de refraccion.*) *Anales de oftalmologia*, Marzo y Abril, 1906.

(1) This method, which is founded on a modification of Scheiner's experiment, is called by Holth "Skiakinescopy." To practise it a screen is required in which there is a hole 5-10 mm. in diameter, covered with opal glass, and brightly illuminated from behind. The patient sits at least 4 metres from the screen and looks at the hole. A bar, less in diameter than his pupil (e.g., a knitting needle), is held in front of his pupil. If he is ametropic this will cause monocular diplopia, the appearance seen being that of a bright elliptical area crossed by a dark band. If the bar is moved, one or other of the double images will disappear, causing the band to seem to move across the bright ellipse, the direction of its motion being the same as that of the bar in myopia, but opposite to it in hypermetropia. The lens which causes the band to disappear renders the eye emmetropic in the meridian perpendicular to that in which the bar is held. In astigmatism the axes of the bright ellipse correspond to the axes of the astigmatism, and the refraction should be estimated in the corresponding meridians, the bar being held at right angles

to them successively and moved along them. Holth has had an apparatus (the "Skiakinescope") constructed by means of which this can be done accurately, and claims that, with it, this is the most rapid subjective method of estimating refraction. It does not, however, give any indication of the visual acuity, which has to be tested in the usual way, and being subjective, it cannot replace retinoscopy, although it is said to be applicable in some cases in which, owing to the presence of leucomata or from other causes, no definite shadows can be seen.

R. J. C.

(3) This is an attempt to disprove Gleichen's theory described in the previous numbers of this journal. A. LEVY.

(4) A controversial article dealing with the distinctions between, and the respective merits of, the methods of estimating refraction described by **Van der Bergh** under the name of subjective skiaskopy (1) and by Holth under the names of kinescopy (2) and skiakinescopy (3).

(5) A reply to Wolff's criticism of a previous paper.

(6) By silk threads which pass through a "cornea," and afterwards through a movable screen representing the retina, **Lagleyze** is able to give students an idea of the course of the rays in the eye in the various forms of refraction. By altering the relative positions of the attachments of the threads, after they have passed the cornea, he can imitate the various forms of astigmatism.

HAROLD GRIMSDALE.

(6A) **Roth** has modified the Placido disc, so that not only can an astigmatism of the cornea be recognised by it, but its extent and its axis be measured. The disc is made of a thin plate of spring steel, and bears the usual black and white rings. A steel wire is attached like a bowstring to each side of the disc, and on the upper surface of the view-tube is a series of teeth into which this wire fits, so that by pulling on it the disc can be given a varying curvature. The principle is that the curvature of the disc shall counteract the distortion of the images by the astigmatic cornea, and thus give a measure of the astigmatism, the teeth on the view-tube being so placed as to mark diopters or fractions of diopters.

A. LEVY.



(1) *Ann. d'Oculistique*, octobre, 1903. (2) *Ibid.*, mars, 1903.

(3) *Ibid.*, juin, 1904.

(7) By measuring at intervals of not less than five months with the ophthalmometer the corneæ of 73 children, **Lagrange** has endeavoured to ascertain whether corneal astigmatism undergoes any modification with age. His observations are divided into two sections:—1st: those dealing with hypermetropic astigmatism, 44 in number; 2nd: those dealing with myopic astigmatism, 29 in number. Among the 44 cases of hypermetropic astigmatism, a diminution in the astigmatism was noted in 41, and this ranged from 0·50 D. to 2 D. In the remaining three instances the astigmatism remained without change. Skiascopy appeared to show that the astigmatism had become modified by an augmentation of the horizontal meridian of the cornea. Among the 29 observations carried out in myopic astigmatism, the astigmatism was found to have increased in 18, to have diminished in two, and to have remained stationary, or almost so, in nine. The increase, broadly speaking, varied from 0·50 D. to 1 D. In one instance it amounted to 2 D., and in a second to 1·50 D. Lagrange's conclusions are two in number:—1st, that hypermetropic astigmatism tends to diminution during the growth of a young subject, more especially if correcting glasses have not been worn; secondly, that myopic astigmatism has a slight tendency to increase. What is the explanation of these facts? The decrease in hypermetropic astigmatism is to be explained, Lagrange thinks, on the theory of partial contraction of the ciliary muscle, modifying the curvature of the horizontal meridian of the cornea. On the other hand, the increase in myopic astigmatism is probably due to the pressure of the eyelids upon an eye a little less resistent than normal. S. S.

(8) **Sherer** lauds skiascopy, and discusses the various factors that tend to lead to imperfect results.

(9) In this method a lens of +13 D. is placed equidistant from both eyes (examiner and examinee), so that it should be as far away as possible from the eye to be examined as still to give an image. The image is then examined through an ophthalmoscope, accommodation being abolished in both cases, and the lens with which the image is best seen is the measure of the defect, the examiner being emmetropic or rendered so. A. LEVY.

(10) **Harman** gives details of a case (and incidentally alludes to "some half-a-dozen" others) where the correction of ametropia led to the disappearance of attacks of so-called "hay fever."

(12) An ametropic eye in general, on looking at black lines running parallel on a white paper, cannot see these clearly. On placing a stenopaeic slit before the eye, the lines can be seen clearly if the slit has the same direction as the lines. The mixed astigmatic eye forms an exception to this rule. In such an eye,

between the myopic meridian of strongest and the hypermetropic meridian of weakest refraction there is somewhere an emmetropic meridian. If the stenopæc slit is held before this meridian, the lines are seen clearly only in case they are held vertically to the slit. The explanation is given by **Schoute**, but being based on higher mathematics, cannot be abstracted here. G. F. ROCHAT.

(13) **Lohnstein**, after referring to Neustatter's criticism of his methods in No. 47 of this periodical, explains that Neustatter has only noticed his first, but not his second method of estimating refraction by means of the inverted image. He, therefore, once again gives a description thereof. Briefly, the method consists in estimating the kind and the degree of the refraction error by the relative movement of the image and the convex lens. In order to estimate the refraction error quantitatively, a squared brass rod carries at one end, and movable on the rod, a lens holder for the convex lens, and at the other a holder for a ring with cross threads, which ring can be rotated to bring the cross threads into different meridians. The cross threads are placed (by means of a graduation on the squared rod) at the focal distance of the convex lens from the latter. The apparatus is held in the left hand before the examined eye and the convex lens placed in the usual position to bring out the inverted image. The ophthalmoscope is, of course, used in the right hand. If on movement of the apparatus up and down, right and left, the movement of the image corresponds with the movement of the cross there is emmetropia. If the image lags there is myopia; if it gains on the movement of the cross, hypermetropia is present. If there are differences in the relative movements in different meridians there is astigmatism of such and such a kind. The observer soon learns to guess approximately the amount of ametropia by the amount of relative movement, and it is only then necessary for him to abolish the movement between the image and the cross by placing correcting lenses in the trial frame on the patient's face. When there is no longer any such relative movement the refraction is corrected.

ERNEST THOMSON.

(14) A physiological study. **Zeeman** measured the different refracting surfaces of the eye (with Helmholtz's ophthalmometer) in several emmetropic, myopic, and hyperopic eyes. Between the radius of the cornea and refraction no connection was found. In myopia the anterior surface of the lens is less curved than in emmetropia, and the anterior surface of the lens is situated at a greater distance from the cornea. In hyperopia the lens behaves in just the opposite way, its anterior surface being more curved and nearer to the cornea.

G. F. ROCHAT.

(15) **Van der Borg** collected the reports of 5,324 eyes in

Professor Straub's clinic in Amsterdam. The refraction was taken with glasses as well as with retinoscopy, cases with other complications than maculae of the cornea and squint were excluded. 7·2 % of all the patients were astigmatic. Among these simple hypermetropic astigmatism was present in 32 %; simple myopic astigmatism in 25 %; hypermetropic astigmatism combined with hypermetropia in 26 %; myopic astigmatism combined with myopia in 11 %; mixed astigmatism in 6 %. Astigmatism in both eyes was present in 2,424 patients. Of these 75·5 % had symmetric meridians of strongest refraction. In the great majority of cases the strongest meridian was vertical, next in number were horizontally placed strongest meridians, then came those placed 10° to 20° to the temporal side. As to the sight after correction the author concludes: When 1D. of simple astigmatism is present, the average acuity of vision is less than 1. In higher degrees of simple astigmatism vision rapidly decreases. Astigmatism with the maximum horizontal gives the best sight after correction.

G. F. ROCHAT.

(16) **Gonzalez** draws attention to the difference of practice of ophthalmologists in this matter. While most French surgeons use cycloplegics in at most a small proportion of all cases, the surgeons of the United States, in many instances at least, think that no estimation of refraction is possible without cycloplegia. Gonzalez thinks that the true path lies between these two extremes. He is sure that cycloplegia is necessary in all hypermetropes of less than 35 years of age, and also in astigmatics of like ages; in myopia where we have reason to suspect spasm of the accommodation; and in all nervous and excitable patients. But although he estimates the error he does not make any subjective examination until the normal power has returned. The advantage of this last point seems doubtful, although it is always best to compare the results obtained under cycloplegia with those which are obtained when the action of the cycloplegic is passed off. In the question of the choice of drug, Gonzalez says that he uses homatropine as a rule, holding atropine in reserve for the treatment of obstinate forms of spasm.

HAROLD GRIMSDALE.

II.—THE SURGICAL TREATMENT OF MYOPIA.

- (1) **Huber, Fritz.**—On the late results of the operation for myopia. (*Ueber Spätresultate der Myopieoperation.*) *Beiträge zur Augenheilkunde*, 64, September, 1905.

(2) **De Font Réaulx.**—The results of the removal of the transparent lens in high myopia. (Resultats de l'ablation du cristallin transparent dans la myopie forte.) *Ann. d'Oculistique*, T. CXXXV, p 95, février, 1906.

(1) **Huber** tried to follow up the history of 100 eyes, upon which Haab had operated for high myopia. Of this number 75 only could be traced. The following table reproduces their vision (in per cents. of the total): A, before operation; B, immediately after; and C, from 3-10 years after the final operation:—

	V = i	0·75-i	0·5-0·75	0·25-0·5	0·1-0·25	0·05-0·1	0·01-0·05	0
A	0	i	10	36	47	4	2	0
B	3	14	25	49	7	2	0	0
C	4	8	44	25·33	6·67	1·33	2·67	8

Huber finds that the operation does not act as a check against the development and the progress of the complications of myopia. Thus, he finds macular changes to develop in 14·67 % of the operated, and only in 7·02 % of the non-operated eyes, although the vision was thereby impaired only in a minority of cases. Similar conditions prevail with regard to the development of opacities of the vitreous, of retinal haemorrhages, and of retinal detachment, which occurred in five cases (never in the non-operated eye). One more eye became blind by glaucoma, and one through sepsis after final discussion (the only one of the series). With regard to the refraction resulting immediately after and some years after final operation, the following table may be given:—

	Emmetropia.	Myopia.	Hypertropia.
Immediately after operation ...	17	12	71
3-10 years after operation ...	33·33	17·39	49·28

Thus, the emmetropic eyes have nearly doubled, while the number of myopic ones have only slightly increased. Huber concludes that removal of the lens is no palliative against the progress of myopia, and that it is our duty to instruct the patients to save their eyes after the operation as well as before, as they are then quite as vulnerable as formerly. R. GRUBER.

(2) **De Font Réaulx** is struck by the fact that although a large number of cases of high myopia have been treated by

removal of the transparent crystalline lens, comparatively few ophthalmic surgeons appear to practise the operation. With a view to explain this and to fix indications for the treatment, he has examined the records of the published cases. He pays particular attention to those which have been kept under observation for periods of five years and upwards, and records six new cases belonging to this class from Rousseau's patients. As a result of his investigations, he has reached the following conclusions.—The treatment is a good one, but serious, owing to the risks, immediate and remote, inseparable from the numerous operations which may be necessary, and the long time during which the patient may have to remain under observation. It appears to increase the tendency to retinal detachment, and does not influence the development or progress of choroidal lesions or prevent the elongation of the eyeball, although it may check the latter, which is less easily recognised, because a given amount produces only half as much increase in myopia as it would in an eye from which the lens had not been removed. The sole good result to be expected is the decrease of the short sight and improvement in distant vision, but unless the operated eye remains myopic enough to read without lenses, the unoperated one is preferred for near work. The treatment should only be undertaken when the myopia amounts to at least 20 D., after fully considering the position of the patient and the requirements of his occupation (especially with regard to binocular vision and near work), and after explaining to him the possible risks and advantages of the procedure.

R. J. COULTER.

III.—YELLOW GLASSES IN OPHTHALMOLOGY.

- (1) **Motaïs.**—Yellow glasses and retinal hyperæsthesia. (*Les verres jaunes et l'hyperæsthesie rétinienne.*) *L'Ophtalmologie Provinciale*, T. II, p. 135, novembre, 1905.
 - 2) **Motaïs.**—On yellow glasses in ophthalmologie ; their clinical indications. (*Des verres jaunes en ophtalmologie ; leurs indications cliniques.*) *L'Ophtalmologie Provinciale*, T. III, p. 29, mai, 1906.
- (1 and 2) For the treatment of retinal hyperæsthesia **Motaïs** uses yellow glasses. He finds that the most satisfactory results are obtained when the colour is of such a nature that by transmitted light it appears slightly orange, while by reflected light it looks brownish. In all eyes, whether diseased or not, these

glasses appear to produce an increase in the apparent illumination of objects accompanied by a restful feeling, or as the patients express it, "they are soft to the eyes." From these effects Motaïs infers that it is not the part of the spectrum, which possesses the greatest illuminating power which hurts the retina, but the extreme rays, either calorific or chemical, and as analyses of the spectra of various tints of his yellow glasses show that the violet end of the spectrum is more or less shortened by all of them, while the red end is unaltered, he concludes that the rays which irritate the retina are the chemical ones. If this opinion be correct, it explains the occurrence of the well-known retinal lesions caused by electric arc lights, which are particularly rich in violet rays.

Motaïs has prescribed these yellow glasses systematically for fifteen years, and considers that they are indicated in all cases of retinal hyperesthesia, or of disease of the deep tunics of the eyes in which blue or smoked glasses are usually recommended, and also for mountaineering or motoring. If ordered for use with artificial lights rich in yellow rays, the tint should be very light.

R. J. COULTER.

IV.—DISEASES AND INJURIES OF THE CHOROID.

- (1) Werner, L.—Central serpiginous choroiditis. *Trans. Ophthalmological Society*, Vol. XXIII, 1903.
- (2) Sampson, W. Stanley.—Sarcoma of the choroid. *American Journal of Ophthalmology*, November, 1903.
- (3) Hamilton, R. J.—Leuco-sarcoma of the choroid. *Liverpool Med. and Chir. Journal*, January, 1904.
- (4) Lee and Stockdale.—Melano-sarcoma of the choroid. *Liverpool Med. and Chir. Journal*, January, 1904.
- (5) Quackenboss, Alex.—Choroidal haemorrhage following cataract extraction. *Archives of Ophthalmology*, July, 1904.
- (6) Reis, W.—A peculiar change in the choroid after ophthalmia nodosa. *Arch. f. Augenheilk.*, Dezember, 1902, and *Archives of Ophthalmology*, September, 1904.
- (7) Nettleship, E.—Sarcoma of the choroid in an eye affected with gross choroiditis of an earlier date. *Trans. Ophthalmological Society*, Vol. XXIV (1904), p. 93.

- (8) Fisher, J. Herbert.—**A case of tumour of the choroid associated with iritis.** *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 102.
- (9) Roll, G. W.—**Area of choroidal degeneration presenting unusual appearance.** *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 118.
- (10) Blair, Charles.—**Rupture of choroid.** *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 260.
- (11) Fehr.—**An angioma of the choroid.** (*Ueber das Angiom der Aderhaut*). *Centralbl. für Augenheilkunde*, Juni. 1905.
- (12) Thompson, A. Hugh.—**Central senile choroiditis.** *Trans. Ophthalmological Society*, Vol. XXV (1905).
- (13) Buchanan, Leslie.—**Choroiditis: an attempt to give an anatomical explanation of some of the appearances seen in the fundus of the eye and termed "choroiditis."** *Trans. Ophthalmological Society*, Vol. XXV (1905).

(1) Werner describes a case of "serpiginous" choroiditis in a lad of 15 years attributed to playing hand-ball in strong sunlight. The disease extended over the surface and tended to enclose portions of healthy choroid by the extension and coalescence of processes. Hence the name "serpiginous" applied by Werner.

(5) Among 3,624 uncomplicated operations for cataract performed during the last forty years at the Massachusetts Charitable Eye and Ear Infirmary, choroidal haemorrhage followed the operation three times. It is due, in Quackenboss's opinion, to a degenerative process either in the choroid or the choroidal vessels. As to treatment, the author counsels immediate enucleation.

(6) Reis' case goes to show that caterpillar hairs may penetrate into the deepest parts of the eye and there produce characteristic changes. The following are the main facts of the case: in 1889 the patient's right eye was struck by a caterpillar. Recurring inflammations led to advice being sought three years after the injury. The patient then presented the features of an attack of ophthalmia nodosa. Ten years after he was first seen, the patient was re-admitted for a burn of the cornea, and the peculiar changes described in the present communication were then discovered. Not far from the disc, in the lower-outer quadrant of the fundus, lay two atrophic and pigmented bands (one long and the other short), meeting

at an angle of 45 degrees. They were crossed by several of the retinal vessels. Vision = 20/50. With the perimeter, scotomata for blue were found, roughly corresponding with the lesions. Reis explains these changes in the fundus by supposing that they were due to a caterpillar hair which had worked its way from the iris to the choroid. It should be said that although the eye was free from irritation, yet nodules were still present in the cornea and the episcleral tissue. A subconjunctival nodule, excised and examined with the microscope, was found by Reis to include a well-preserved hair.

(7) **Nettleship** removed the right eye of a female, aged 24 years. The eye had been blind for many years, but had recently become painful. Its condition prior to removal was as follows:—V.= no p.l. T.+I. Cornea hazy. Some bulging in ciliary region. Anterior ciliary vessels in lower-outer part of globe engorged, as in certain cases of intra-ocular tumour. Upon opening the eyeball immediately after removal, a staphyloma, extending from just behind the external rectus almost to the optic nerve, was found to correspond with a solid brown mass in the eyeball, having a maximum thickness of 10 mm. Microscopically, aside from minor peculiarities, which need not be enlarged upon here, the tumour was found to consist of roundish, non-pigmented sarcoma cells, permeated by wide-blood channels, giving the growth almost a cavernous character. It might briefly be described, then, as an angiomatous sarcoma. The presence of cholesterine in a laminated substance lying between the sarcoma and the sclera was suggestive of a copious subchoroidal haemorrhage having occurred at an early stage in the growth of the tumour. A thin layer of fibrous tissue, with scattered oval nuclei, situated between the sarcoma and the disorganised retina, on the other hand, might possibly be due to a former tuberculous inflammation, such as was rather indicated by the clinical history.

(8) **Fisher** excised an eye from a woman, aged 54 years, on account of a small sarcoma of the choroid. The eye had been inflamed and painful for some months before the operation; the iris was discoloured, and the pupil was occupied by inflammatory membrane. The neoplasm, which originated from the neighbourhood of the entrance of the optic nerve, was separated by a wide interval from the ciliary region and iris. Microscopical examination, however, showed that inflammatory changes were present in the two structures named. Fisher concludes his communication with some abstract considerations with regard to sympathetic inflammation attributed to intra-ocular growths without obvious perforation. In the course of these more or less cursory remarks he reports an instance of sympathetic inflammation coming on after removal of a wounded eye. The

main facts follow : a child, aged 5 years, was wounded in one eye by a pair of scissors on August 26th, 1902. There was a perforated wound of the cornea, together with prolapse of the iris. By means of iridectomy and division the iris was freed from the wound. On December 8th, owing to irritability of the injured eye, iridectomy was again attempted, but the result being unsatisfactory, the eye was removed two days later. On February 20th, 1903, the child was admitted with slight sympathetic ophthalmitis, as shown by ciliary redness, lymph in pupil, variable tension, and punctate keratitis. Despite treatment with atropine locally and mercury internally, irido-cyclitis was still present when Fisher's paper was read on October 29th, 1903.

(10) **Blair** reports multiple (4) ruptures of the choroid after injury to the eye.

(11) **Fehr** reports a case of this rare condition, the interest of which lies in the fact that it had been seen twenty years previously, when an ophthalmoscopic examination was possible. The tumour at that time was a large bluish-grey mass lying to the outer side of the macula, four or five disc diameters in size. The nature of the tumour was at that time not diagnosed, but as it differed somewhat from a sarcoma, the eye was not removed. Vision became progressively worse, until it was totally destroyed, and then an attack of iridocyclitis necessitated enucleation. Microscopically, a typical cavernous angioma was found involving all the layers of the choroid. This condition has never been diagnosed *intra vitam*, and Fehr says that it should be thought of in all tumours resembling sarcomata, but which are of a white or bluish-white colour, have a smooth surface, and appear as if seen through a veil. A. LEVY.

V.—SYMPATHETIC OPHTHALMITIS.

Fuchs, E.—On sympathetic ophthalmia, with remarks on serous traumatic iritis. [Ueber sympathisierende Entzündung (nebst Bemerkungen ueber seröse traumatische Iritis).] von Graefe's *Archiv f. Ophthalmologie*, Bd. LXI, 2; 12 September, 1905.

The principal results of **Fuchs'** researches are as follows—In all cases of sympathetic disease of the second eye, we find typical anatomical changes in the one first affected, which are wanting in any other case, even in sympathetic irritation. Out of

very numerous specimens of eyeballs excised after traumatisms, such as are commonly suspected of leading to sympathetic ophthalmia, the anatomical changes, which are, by Fuchs, considered typical of sympathetic affection, were invariably found only where the other eye was proved to have been participating. The difference between traumatic iridocyclitis ("Endophthalmitis," after Fuchs) and sympathetic ophthalmia consists in the type of cells which form the infiltration and in the way in which the eye (especially the uvea) becomes involved. With regard to the first point, we find in sympathetic ophthalmia leucocytes, epithelioid cells and (not constantly) giant-cells, while epithelioid and giant-cells are always absent in traumatic iridocyclitis, where the infiltration consists of lymphocytes and polynuclear leucocytes only, the proportion of which depends on the intensity of the inflammation. More important still is the arrangement of the infiltration in the several portions of the uvea. Traumatic iridocyclitis affects the most superficial layers of the lining membranes; the pars ciliaris retinae in the ciliary body and further backwards mostly the retina, while the choroid becomes involved only where the retina is so much disabled as to be unable to act as shield. In sympathetic ophthalmia, on the other hand, the stroma of the uvea is the first to suffer, and again the posterior part of the choroid much more than the anterior one, while the pars ciliaris retinae and the retina are most often unimpaired. We find the exudation in endophthalmitis on the surface, and in sympathetic ophthalmia within the tissue itself. In the latter affection we also find a tendency for the infiltration to creep along the emissaries and to perforate the sclera, which never occurs in traumatic iridocyclitis, the case of suppuration excepted. Both forms of inflammation may of course combine, and then iridocyclitis seems to act as a check on the progress of sympathetic ophthalmia. Serous traumatic iritis is anatomically somewhat similar to sympathetic inflammation. It differs from it by the comparative freedom of the choroid and the deficiency in epithelioid and giant cells. Fuchs thinks that these differences are quite sufficient to enable the anatomical examination to pronounce on the sympathetic nature of an affection. The great theoretical importance of this point is evident, although unfortunately, the clinical examination and the prognosis are not thereby advanced. Fuchs concludes his communication with the advice to remove the eyeball in every doubtful case.

R. GRUBER.

VI.—SQUINT AND ITS TREATMENT.

- (1) Jocqs, R.—Musculo - capsular advancement. (*Sur l'avancement musculo-capsulaire.*) *La Clinique Ophthalmologique*, 25 août, 1903.
- (2) Vallet, A.—The treatment of amblyopia ex anopsia in strabismus. (*Essai de traitement de l'amblyopie ex-anopsia dans le strabisme.*) *Recueil d'ophthalmologie*, août, 1904.
- (3) Mowat, D.—Permanent paralysis of inferior recti muscles following diphtheria some years previously : left divergent strabismus and some right facial paralysis. *Trans. Ophthal. Society*, Vol. XXIV (1904); p. 238.
- (4) Stephenson, Sydney.—Some recent developments in the surgical treatment of strabismus. *Lancet*, September 23rd, 1905, and *La Clinique Ophthalmologique*, octobre 10, 1905.
- (5) Hirschberg, J.—The result of a rare operation for squint, seen after 32 years. (*Erfolg einer seltenen Schiel-Operation, nach 32 Jahren beobachtet.*) *Centralbl. f. prakt. Augenh.*, November, 1905.
- (6) Oliver, Charles A.—Description of a single stitch operation for advancement of the exterior ocular muscles. *Ophthalmology*, January, 1906.

(1) In this article **Jocqs** is engaged in rebutting a criticism by de Wecker on the operation described in *La Clinique Ophthalmologique*, mai, 1903.

(2) **Vallet** insists on the necessity of re-educating an amblyopic eye, by means of visual gymnastics, as the essential step in the correction of squint and the prevention of its recurrence.

Squint is produced by the following processes :—

- i. There is primarily an error of refraction of one eye.
- ii. That eye is unable to see along with the other ; it suppresses its image and becomes amblyopic.
- iii. That same eye deviates.

The correction of squint should be carried out in the same order, *viz.* :—

- i. Correct the refraction.
- ii. Treat the amblyopia and re-establish simultaneous vision by means of the diploscope.
- iii. Endeavour to prevent suppression.
- iv. Correct the squint by operation, as a last resource only.

J. JAMESON EVANS.

(4) **Stephenson** traces briefly the history of the development of tenotomy, tenectomy, and advancement for the relief of squint, and glances at the more important modifications that from time to time have been made in those operations. He then describes the operation of lengthening the rectus muscle, introduced by him in the year 1902 (*Trans. Ophthal. Society*, Vol. XXII, p. 276). The two methods that he then employed will be obvious by a consideration of the appended figures (1 to 4).



FIG. 1.

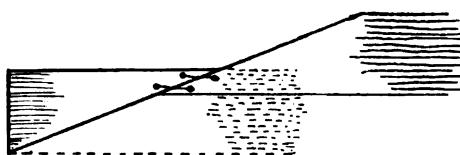


FIG. 2.

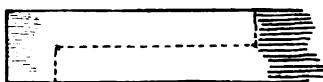


FIG. 3.

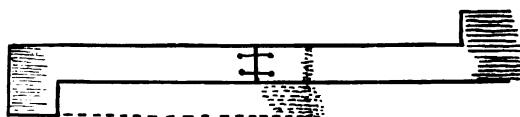


FIG. 4.

Verhoeff's ingenious modification (*Klin. Monatsbl. f. Augenheilkunde*, April, 1903) of lengthening the tendon without dividing the latter or using any sutures is shown in figs 5 and 6.

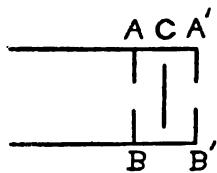


FIG. 5.

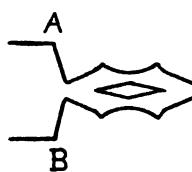


FIG. 6.

Grimsdale, fearing that Stephenson's methods might interfere

with the direction of the chief action of the muscle concerned, suggested a plan of overcoming this assumed difficulty which will be apparent from a glance at figs. 7 and 8 (*The Chief Operations of Ophthalmic Surgery*, 1904, p. 9).



FIG. 7.



FIG. 8.

By a singular coincidence, in January, 1905, Landolt (in evident ignorance of Stephenson's work) described a method of muscular elongation, shown in figs. 9 and 10 (*Archives d'ophtalmologie*, January, 1905).

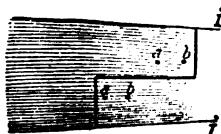


FIG. 9.

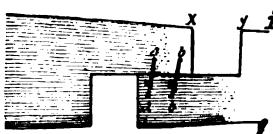


FIG. 10.

Lines of incision in muscle.
a, b, Points of suture,
i, Insertion of muscle.

Muscle advanced and sutured.
x, y, Gap in muscle. The
remaining letters signify
the same as in Fig. 9.

The technical difficulties which attend the lengthening of the ocular muscles led Stephenson to endeavour to find a simpler substitute. For this purpose he has successfully adopted the so-called "artificial tendon," introduced into orthopaedic surgery by Glück in the year 1892. The operation as applied to the internal rectus muscle is simple. The tendon is exposed, and two thoroughly sterilised silk threads are passed through the tendon about 3 mm. from its scleral insertion. The threads are knotted, one long end armed with a small curved needle being left attached to each. The tendon, thus securely held, is divided vertically on the outer side of the knots, and the threaded needles are passed between the distal and the proximal portion of the divided tendon, in such a way as to bridge over the gap left between the two. Lastly, the two sutures are tied together.

An even simpler way of forming the "artificial tendon," is to use two needles on one length of silk. In fig. II the sutures

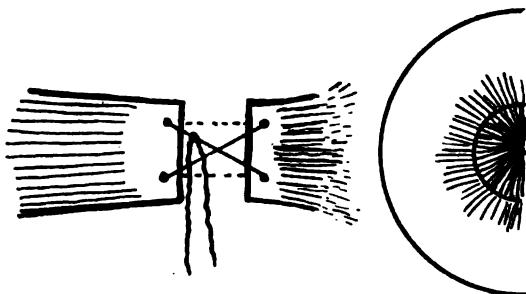


FIG. II.

have been passed crosswise and tied. If advancement of the antagonist muscle has formed part of the operation, the sutures should not be adjusted until the first operation has been completed. If, on the other hand, muscular elongation be alone contemplated, then before the threads are tied, the eyeball should be strongly abducted, so as to leave a distinct interval before inserting the silk threads of the "artificial tendon." The final step is to close the conjunctival wound by two or three points of interrupted suture.

(5) **Hirschberg**, in 1873, operated on a woman, *ætat 22* years, for the following condition.—The right eye was in a position of convergent squint; outward movement took place only to the middle line, and was accompanied by some movement upward. Vision in each eye was normal; there was no diplopia, but the head was carried in an awkward position. The operation done was as follows:—first, a tenotomy of the internal rectus, then the external rectus was looked for. In the normal situation a thin strand was found, about $\frac{1}{4}$ the size of the normal tendon. Sutures were introduced and the tendon divided. It was then found that the muscle-belly was firmly fixed to the posterior part of the eyeball by strands of connective tissue. These were divided and the muscle was advanced. The result at the time was extremely good. The position of the head became normal, and the movements of both eyes almost normal. This result has been maintained, and now, 32 years afterwards, it is found that the position of the eyes is perfectly good. A. LEVY.

(6) Nine years ago **Oliver** devised the following operation, which he has performed successfully in 120 cases, both in private and public practice.—The patient being properly prepared, general anaesthesia obtained, and the field of operation having been rendered as aseptic as possible, a lever speculum is inserted

between the two lids in such a way that there is equalized traction upon them, and that the eyeball enjoys free rotation. If it be the external rectus muscle that is to be advanced, the tendon and adjacent capsular membrane of the corresponding internus are freed in the ordinary manner, and the eyeball is allowed to assume its new position. This done, the conjunctiva over the head of the tendon of the external rectus muscle is incised vertically by one or two snips with a pair of fine scissors. The underlying portion of the capsule of Tenon is freed from its attachments, and the tendon and anterior portion of the belly of the muscle are exposed by means of a small blunt hook and some dissection, which is preferably directed against the posterior surface of the conjunctiva. The hook is held in a vertical position directly against the tendinous insertion of the muscle, and one blade of a muscle fixation forceps is slid vertically beneath the muscle belly and held vertically as far back as may be necessary. The forceps are then clamped into position. The blunt hook is removed, and the muscle is cleared of any extraneous attachments by dissection. While the instrument is held in the grasp of the forceps, an iron-dyed, black-silk suture, with a needle at each end, is carried beneath the lower border of the exposed muscle just back of the fixation forceps, brought vertically up through the muscle tissues at the junction of the vertical lower and middle thirds, over the muscle surface. It is then carried through the muscle tissue at a point corresponding with the junction of the corresponding middle and the upper thirds. The tendon is freed from the sclera, and as much of it and the body of the muscle as may be desired are excised. This leaves the shortened muscle broadened to its full width and caught in a vertical suture.

The undissected portion of the conjunctiva situated toward the cornea is lifted in its lower portion, and the corresponding part of the suture is carried well under and into the anterior layer of the sclera. It is then brought out at about one to two millimeters within the outer border of the corneal limbus. The upper portion of the suture is similarly placed in the upper conjunctiva and sclera. Gentle traction upon the suture and adjacent parts is made to ascertain the exact amount both of the lateral and the vertical deviations that have been obtained, in order accurately to locate the position of the scleral hold and the points of suture egress in the overlying conjunctiva.

The parts being carefully flushed and cleansed with warm sterile water, and all free haemorrhage having been checked, the overlying conjunctival flap is smoothed out and laid over the gaping wound. The ends of both the upper portions of the suture are carried beneath this covering flap of mucous

membrane, and brought out through the membrane in positions corresponding with the now directly underlying sclero-conjunctival stitches. The suture is carefully graded and shortened until the desired position of the eyeball is either obtained or slightly exceeded. The free edge of the conjunctival flap is then spread out over the outer half of the cornea, and the suture is securely tied by means of a surgeon's double knot.

The parts are cleansed, a drop or two of atropine is instilled, and a binocular bandage is applied. The patient is placed in bed, and iced compresses are applied. If all goes well—as has always been the good fortune of the writer—the patient is allowed out of bed in from twenty-four to forty-eight hours' time. The iced compresses are discontinued a day or two later. The stitch may be allowed to remain in position for a period of several days without any discomfort or disturbance ensuing. The parts heal evenly and smoothly—without any wrinkling—and soon assume their normal appearance.

Every case was carefully selected and cycloplegic correction, carried as near to the full amount of ametropia as was possible, was tried for three months before the operation was performed. In each instance, whenever possible, the refractive condition of the weaker eye was constantly kept in the closest obtainable relationship with binocular fusion by means of orthoptic exercises, securing, in a considerable number of the cases, a persistence of the primary good results. If the primary effects are too great or inefficient, immediately appropriate orthoptic exercises, intentional fixation towards or away from the advanced muscle, the employment of cycloplegics, reductions and increases of spherical strength in the correcting lenses, and modified repetitions of the procedure, will soon set matters right and bring the case into the desired orthophoria for the usual working distances.

VII.—THE FIELD OF VISION IN CONGENITAL AMBLYOPIA.

- (1) Heine.—On central scotoma in congenital amblyopia. (*Ueber das zentrale Skotom bei der kongenitalen Amblyopie.*) *Klin. Monatsbl. f. Augenheilk.*, 1905, Januar, p. 10.
- (2) Visser, B.P.—The field of vision in unilateral (so-called congenital) amblyopia. [*Het gezichtsveld bij eenzijdige (zoogenaamde congenitale) amblyopie.*] *Militair Geneskundig Tijdschrift*, 1905.

(1) In numerous examinations of the field of vision in persons suffering from congenital amblyopia, Heine has been able to demonstrate a central scotoma. The test was made either monocularly, under the eye of the observer, or binocularly, by Schlösser's method. The defect in the visual field was almost always objective (negative) in the congenital cases, and subjective (positive) in those of acquired amblyopia. Heine suggests that this differentiation might be utilized in diagnosis. The cause of congenital amblyopia, Heine thinks, is to be sought in the retina, but it is impossible exactly to determine in what way, owing to lack of anatomical investigations. A. BIRCH-HIRSCHFELD.

(2) In Visser's article the use of perimetry for the examination of recruits for the military service is discussed. The military surgeon constantly has to decide whether simulation, hysteria, or bad vision is present. On mapping out the field, a stimulant usually is found to have an important concentric restriction, but if the outlines are marked with chalk on the campimeter, repeated trials always give the same result, the patient in this case thinks he ought to stick to his sayings.

In cases of hysteria the well-known form of narrowing of the field, steadily increasing as fatigue comes on, is found.

In congenital amblyopia, if the field of the bad eye is taken while the other is closed, generally there is neither restriction nor central scotoma. But in many cases a *functional* central scotoma is found if both eyes are kept open, a red glass being kept for the good eye and the field tested with a green object. Under these conditions the good eye is used for fixation, while the field of the other eye only is taken, the fixing eye not being able to see the green object through the red glass. This method, first used by Hirschberg, has recently been tried by Heine, of Breslau, who found a central scotoma in 90% of his cases of amblyopia of one eye. Heine thinks this scotoma to be a *real* one, and to the objection that the patients do not show a scotoma if the field is tested on the amblyopic eye separately, he answers that such a scotoma cannot be found because the eye can but imperfectly fix the centre of the perimeter. But Visser objects that however imperfect the fixation by the amblyopic eye may be, so large a scotoma as Heine found (20 to 30 degrees) cannot escape detection. If, therefore, with the usual monocular method, it cannot be found, it must be a functional, not a real scotoma, and is the result of the "exclusion" of the central part of the field of the amblyopic eye in binocular vision. It is regularly met with in squint. Moreover, there is another method of stereoscopic perimetry given by Haitz (*Klinische Monatsblätter f. Augenheilkunde*, 1904), in which the difficulty arising from bad fixation is avoided. Visser tried those patients who

showed the central scotoma with Heine's method in this way, and failed to find the defect, which proves his opinion about the functional nature of the scotoma to be right.

Nevertheless, such a "functional" central scotoma, if present, indicates real amblyopia, and its detection, by means of the binocular method of taking the field, may be of great value in the case of a recruit who is suspected of simulating bad sight in one eye.

G. F. ROCHAT.

VIII.—TREATMENT.

(*Fifth Notice.*)

- (1) Leprince, A.—Collyria of potassium iodide in ophthalmology. (*Les Collyres d'iode de potassium en ophtalmologie.*)
- (2) Santini, A.—Intra-articular injections of sodium salicylate in acute articular rheumatism. *Gazz. degli Ospedale delle Clin.*, No. 100, 1904, and *Gazette des Hôpitaux*, 24 novembre, 1904.
- (3) Delzoppo, L., and Soli, T.—Premature delivery necessitated by a serious lesion of the eye. (*Aborto provocato per grave lesione oculare in gravidanza.*) *Annali di Ottalmologia*, Vol. XXXIII, Fasc. 1-2, p. 36.
- (4) Abadie.—Mercurial injections and the affections known as parasyphilitic. (*Les injections mercurielles et les affections dites parasyphilitiques.*) *La Clinique ophtalmologique*, 25 janvier, 1905.
- (5) Guibert and Guériteau.—Epithelioma of the lacrymal sac: cure by Röntgen rays. (*Epithélioma du sac lacrymal: guérison par les rayons Röntgen.*) *La Clinique ophtalmologique*, 10 mars, 1905.
- (6) Snyder, Walter H.—Epithelioma of the lid: removal by dissection and X-ray treatment. *Ophthalmology*, April, 1905.
- (7) Pronger, C. Ernest.—Slight errors of refraction and their influence upon the nervous system. *Lancet*, June 10th, 1905.
- (8) Golesceano.—Ocular atmotherapy. (*Atmothérapie oculaire.*) *Recueil d'Ophthalmologie*, juillet et août, 1905.

- (9) Hern, J.—The effect of the presence of adenoids and other abnormalities in the naso-pharynx on some affections of the eyes. *British Medical Journal*, August 26th, 1905.
- (10) Rehns and Salmon.—Treatment of cutaneous cancer by radium. (*Traitemennt du cancer cutané par le radium.*) *La Clinique ophtalmologique*, 10 septembre, 1905.
- (11) Strzeminski.—Severe pseudo-membranous conjunctivitis cured by Behring's serum. (*Conjonctivite pseudo-membraneuse grave guérie par le sérum Behring.*) *Recueil d'Ophthalmologie*, octobre, 1905.
- (12) Armstrong, Hubert.—A case of hypermetropia with mental symptoms. *Medical Press and Circular*, 4th October, 1905.
- (13) Thielemann, R.—The effect of radium emanations on trachoma. (*Zur Wirkungsweise der Radium-bestrahlung auf die trachomatöse Bindehaut.*) *Zeitschr. f. Augenh.*, Dezember, 1905.
- (14) Birch-Hirschfeld, A.—Clinical and anatomical examination of the effect of radium on the trachomatous conjunctiva. (*Klinische und anatomische Untersuchungen über die Wirkung des Radiums auf die trachomatöse Bindehaut.*) *Klin. Monatsbl. f. Augenheilkunde*, Dezember, 1905.
- (15) Troussseau.—Epitheliomata of the eyelids. Operation or radiotherapy? (*Les épithéliomas des paupières. Opération ou radiothérapie?*) *Annales d'oculistique*, T. CXXXV, p. 60, janvier, 1906.
- (16) Eperon.—Clinical notes on detachment of the retina and its treatment. (*Notas clínicas sobre el desprendimiento retiniano, en particular sobre su tratamiento.*) *Arch. de Oftal. Hisp.-Amer.*, Febrero, 1906.
- (17) Kirchner.—Alypin as an anæsthetic for the consulting room. (*Alypin als Anæstheticum für die Sprechstunde.*) *Ophth. Klinik.*, April, 1906.
- (18) Harris, James.—Opacities of the cornea. *The Antiseptic* (Madras), May, 1906.
- (19) Hinshelwood, James.—Dionine in ophthalmic practice. *British Medical Journal*, 12th May, 1906.
- (1) Leprince's experiments lead him to believe that collyria of potassium iodide are likely to render service in ophthalmology,

a view already taken by Badal, of Bordeaux. By this means the author treated infantile cataract, scleritis, episcleritis, and iridocyclitis, and obtained improvement in every instance. The employment of the medicament is not painful nor does it set up any reaction. According to the nature of the disease, solutions may range in strength from 1% to 2.5%. It is possible that in grave cases the subconjunctival injection of the iodide may yield even better results.

A. DARIER.

(2) Santini believes the injection into the joints of salicylate of sodium to be superior to all other methods of applying the remedy. A single injection into the synovial cavity is usually enough to obtain the desired result. The small operation is generally followed by severe pain. The plan should, therefore, be reserved for particular cases—as, for example, when general treatment fails, or when intolerance exists to the internal administration of the salicylate. Santini uses a 3% solution of the salicylate in distilled water, and the maximum injection he places at 3 c.cm. to 4 c.cm. If the joint is markedly distended by fluid, it is a good plan to withdraw a little of the latter by aspiration before making the injection.

(3) In a woman, who had already lost one eye during her second pregnancy from disseminated choroiditis and detachment of the retina, the other eye during the fifth pregnancy became similarly affected. The malady, which was characterised by numerous foci of choroiditis, exudation into the vitreous, and so forth, being rebellious to all treatment, local or general, and menacing more and more what sight remained, it was determined to bring on abortion. As a result, the affection of the eye underwent a remarkable and definite improvement.

A. ANTONELLI.

(4) Abadie strongly advocates mercurial injections, intramuscular or intravenous, not only in undoubtedly syphilitic affections, but also in those in which syphilis cannot be proved. The article deals not only with eye diseases but also with those of the nervous system, and the author points out that where others have failed to obtain results by using mercury in the ordinary way, he has succeeded by injecting into the muscles biniodide of mercury every day. In one case this daily treatment (2 centigrammes) was continued for six months, and was ultimately successful.

ERNEST THOMSON.

(5) Guibert and Guériteau give a very full description regarding the details of the electrical treatment of a case of epithelioma of the lacrymal sac. The treatment was in eight sittings, extending over about four months, and it was not until severe dermatitis

had been set up that healing commenced. The cure was complete; the æsthetic result excellent, the skin being merely blanched, and free from adhesions and induration. No recurrence in seven months.

ERNEST THOMSON.

(6) This interesting case of undoubted malignant epithelioma which was successfully treated by operative removal and eight ten-minute applications of X-rays at seven inches' distance each with a soft tube (hand bones at fifteen inches), is of value in showing the probable permanency of the cure of the case—six months at the time of the writing of the paper. C. A. O.

(7) **Pronger** gives details of fourteen cases where correction of errors of refraction relieved or cured the most varied manifestations—as, for example, sea- and train-sickness, insomnia, vertigo, headaches, mental depression, and especially neurasthenia. Questions of insanity and of suicide are touched upon by the author.

(8) **Golesceano** has devised a method by which hot vapour can be applied to the open eye at a constant temperature, which can be regulated by the patient himself. The apparatus consists of a dome-shaped boiler having a short metal tube opening from its upper part. By means of a rubber tube this is connected to one branch of a double-channelled tube, the other branch of which is connected to a rubber hand bellows. The vapour from the boiler passes through the peripheral part of this tube, and the cold air from the pump is driven through the central division. The mixed air and hot vapour are led from this tube by means of a rubber tube into a funnel-shaped mask.

This mask may be applied in two ways: (1) It may be used as a closed chamber when the edges of the funnel are closely applied to the orbital margins. In this case the rubber tube is fixed to the stem of the funnel; (2) It may be applied at a distance of 4 cms. from the eye, in which case the rubber tube is fixed to a tube which opens through the side of the funnel. The vapour is generally used at a temperature of 40° — 45° C., and it is not necessary to anaesthetise the cornea. By working the bellows more vigorously the temperature can be raised, and one of 50° C. can often be tolerated. The application of hot vapour to the eye gives rise to some lacrymation, accompanied by a whitish frothy secretion. The cornea and deeper parts of the eye are not affected. The sittings last five to ten minutes, and may be repeated three or four times a day, or even oftener, with advantage.

The treatment has been found beneficial in blepharitis, conjunctivitis, in phlyctenular, marginal, suppurative, and interstitial keratitis, in iritis, herpes febris corneæ, and in scleritis.

The photophobia and spasm of the orbicularis so often seen in many of these cases disappear after a few applications of the hot vapour. In purulent infiltration of the corneæ, atmotherapy has a deterotive action. In herpes corneæ and iritis it has an analgesic action. The increased vascularity and phagocytosis set up by the moist heat shortens the duration of cases of interstitial keratitis.

In many cases, the ocular condition is dependent upon or associated with a lesion of the nasal mucous membrane. In such cases the nose requires treatment as well as the eye. For the purpose of nasal atmotherapy the funnel-shaped eye mask is replaced by a Y-shaped nasal tube. One branch of the Y is connected with the rubber tube leading to the pump and boiler, and the other is covered by a rubber cap. The stem, which is the part introduced into the nose, is covered with a short piece of rubber tubing. For intranasal use, half a teaspoonful of the following solution is added to the water in the boiler :—

Menthol ...	...	...	...	2 grammes
Guaiacol ...	...	...	...	5 grammes
Camphorated alcohol ...	...	...	...	80 grammes

The introduction of hot vapour into the nose produces abundant lacrymation, conjunctival hyperæmia with a whitish secretion, and an increased secretion from the nasal glands. These symptoms quickly pass off when the application is discontinued. Occasionally it may be followed by sneezing and a temporary feeling of "cold in the head." If the nasal tube does not fit closely, the vapour may escape around it and scald the margins of the anterior nares. A little vaseline may be applied to the alae nasi to prevent this.

Intranasal atmotherapy has an inhibitory action on the growth of microbes in the nose

Combined ocular and nasal atmotherapy have been found valuable in lacrymation associated with hypertrophic, atrophic, and strumous rhinitis, and in unilateral seromucous dacryocystitis with chronic retinitis. A case of recurrent infection of the wound after excision of the lacrymal sac recovered promptly under camphorated mentho-guaiacol intranasal sprays. The nasal atmotherapy should be continued as long as the ocular symptoms persist.

J. JAMESON EVANS.

(10) **Rehns** and **Salmon** relate two cases. The one of the lip, the other of the ala of the nose, successfully treated by the application of a radium-box containing 30 m.g. of radium bromide for 30 minutes (on an average). In the first case there were 6 applications in 70 days, and in the second case 14 applications in 76 days. The writers finish with some general remarks on the use of radium, pointing out especially the facility

of its use compared with the Roentgen apparatus, its efficacy in small tumours, and, on the other hand, the drawback of its costliness.

ERNEST THOMSON.

(11) A baby, four months old, who was brought to Strzeminski, presented the following symptoms, which were of two days' duration. The eyes were closed. The upper lids swollen, hard, shiny, smooth, and stiff, and the skin was purplish in colour. The lower lids were swollen and overlapped by the upper lids. The tarsal conjunctiva and *culs-de-sac* were entirely covered by a compact greyish false membrane, which could with some difficulty be removed in one piece from each lid, which then showed a somewhat swollen and only slightly reddened conjunctiva underneath. After removal, a fresh false membrane formed again in a very short time. The bulbar conjunctiva was hyperæmic and slightly chemotic. The corneæ showed a little opacity near the limbus. The conjunctival discharge was greyish in colour and small in amount. There was considerable lacrimation. The child was well-developed and well-nourished. The temperature was normal. The case was diagnosed as an attenuated form of diphtheritic conjunctivitis or as a form intermediary between croup and diphtheria. The author did not consider that a bacteriological examination would have helped towards a more definite diagnosis, and accordingly none was made. Local treatment by means of boric fomentations and yellow ointment being unsuccessful, 10 c.c. of Behring's serum was injected. As there was no improvement on the following day, the dose was repeated. This was followed by an immediate improvement, and the patient was cured in less than a week.

The author gives a *résumé* of two similar cases described by him in 1896-7. He regards croup and diphtheria as two different clinical entities, which are, however, both caused by the bacillus of Loeffler. This bacillus is found only for a short time in the croupous cases, and it is generally associated with staphylococci and streptococci. Staphylococci (*aureus* and *albus*) are found in the mild superficial form of croupous conjunctivitis, whilst streptococci are found in the severe interstitial form, and are especially dangerous to the eye. The Loeffler bacillus alone does not give rise to diphtheria in the eye, unless it is introduced deeply into the incised *cul-de-sac*. But when associated with streptococci, simple introduction of the organisms into the conjunctival sac will set up diphtheritic conjunctivitis. It is the staphylococci and streptococci which determine corneal ulceration; but this view, which is attributed to Sourdille, is not held by several eminent clinicians and bacteriologists. The author is of opinion that bacteriological examinations are of little value in diagnosis, owing to the difficulty in differentiating between the

Klebs-Loeffler bacillus and the pseudo-diphtheritic bacillus, and owing to the extreme variability in the virulence of both organisms. He considers that croupous and diphtheritic conjunctivitis may be caused by streptococci, staphylococci, and pneumococci, Weeks', and influenza bacilli. Whether they show the Klebs-Loeffler bacillus or not, anti-diphtheritic serum by subcutaneous injection or by instillation into the conjunctival sac (Mongour) may prove efficacious in these cases.

J. JAMESON EVANS.

(12) **Armstrong** reports the case of a small child of 4 years, whose homicidal tendencies were cured by the correction of three dioptres of hypermetropia!

(13) **Thielemann** experimented most carefully with radium on undoubted cases of trachoma, operating only on one eye and keeping the other for purposes of control, and he comes to the conclusion that radium has a definite influence on the manifestations of trachoma, causing the follicles and granulations gradually to grow smaller and to disappear, leaving the epithelium comparatively unaffected. Further experiments are being carried out and the cases watched, and future reports will be awaited with interest.

A. LEVY.

(14) **Birch-Hirschfeld** applied radium (10 mg; exposure : 3 to 20 minutes) in 10 cases of trachoma with the following effects: the granules very soon became less prominent and finally disappeared. But in one case only did this good result last longer than a few weeks. In all the other cases the granules reappeared after a very short period, so that it was necessary to have recourse to the usual therapeutic agents. Parts of the conjunctiva were excised for microscopical examination, and the disintegration of the granules under the influence of radium was thereby confirmed. The changes were proved to commence already a few hours after the application of radium to the conjunctiva, *i.e.*, before they were evident to clinical observation.

C. MARKUS.

(15) **Trousseau** has operated for definite epithelioma of the eyelids on patients who remained quite free from recurrence for periods of 6, 8, 10, 12, and 15 years, and has also seen remarkably good results from treatment with X-rays in cases of limited superficial epithelioma of the same region, the clinical and histological diagnosis of which he does not consider to have been very clear. On the other hand, in true ulcerative spreading epithelioma, although he quotes one brilliantly successful case, he has seen several in which no improvement resulted from exposure to X-rays, and others in which, in spite of superficial improvement, and even apparent cure, the disease spread into the deeper tissues. Notwithstanding these

observations, which tend to prove that for the cure of this disease operation is preferable to radiotherapy, he hopes that with improved technique and more accurate knowledge of the indications for its employment, the latter will eventually prove to be the better treatment.

R. J. COULTER.

(16) **Eperon** is in favour of subconjunctival injections of saline, combined in most cases with scleral puncture. He does not think very concentrated solutions necessary—10% or 15%, is ample in his opinion. With these he uses compressive bandages, and in view of Best's work, recommends that the bandage should be binocular.

HAROLD GRIMSDALE.

(17) **Kirchner** finds alypin a very useful local anaesthetic for minor operations, such as incising or curetting tarsal tumours, cauterising corneal ulcers, removing foreign bodies from the cornea, although he still prefers cocaine for intraocular operations. He uses a new and improved preparation, and employs a 4% solution. The advantages claimed for it are that it acts more quickly than cocaine of equal strength, does not irritate more than cocaine and is just as efficient, besides having no effect upon the pupil or the accommodation.

PERCIVAL J. HAY.

(18) **Harris** speaks in enthusiastic terms of the treatment of corneal opacities by means of massage with a piece of rubber, such as can be extemporised in a few moments from the rubber ring of an ordinary soda-water bottle. The affected eye is first irrigated with sublimate, 1: 5,000, and then the cornea is massaged by means of the rubber contrivance. A local anaesthetic is not usually employed. In dealing with a nebula, according to Harris, this is all that is needed to cause its disappearance! In denser opacities the massage is followed by the instillation of dionine, 1%, or preceded by the application to the eye of calomel, or of yellow ointment. In leucomata, the direct application of hot or cold air is advocated (no details given), in addition to massage and dionine.

(19) **Hinshelwood** has a careful paper on the applications of dionine in eye work. He has employed the new agent mainly as a 5% aqueous solution, or as an ointment compounded with vaseline. His results have been most satisfactory in relieving the pain of iridocyclitis, glaucoma, and keratitis, ulcerative or otherwise. As a means of relieving pain it is more powerful than holocaine, and, it need scarcely be said, than cocaine. Dionine is in no sense an ocular anaesthetic, and has no action whatever upon the pupil or the intraocular tension. The dionine drops or ointment, which can do no harm, may be applied every 2, 4, 6, or 8 hours, according to the severity of the pain and the effect produced. Hinshelwood has found weak dionine drops (1% or 2%) relieve the soreness and discomfort of the eyes so often complained of by

neurotic persons, apart from any demonstrable disease of the eyes. In the pain attending certain forms of eye-strain, again, it is useful. The author finds dionine has a marked effect in clearing up corneal capacities, more especially if these be of recent origin. Dionine acts best in such cases when applied as an ointment (4 to 12 grains to the ounce), used once or twice a day. In short, dionine, according to Hinshelwood's very practical communication, relieves deep-seated ocular pain, soothes irritable eyes, and is the most powerful means at our disposal for clarifying opacities of the cornea.

S. S.

IX.—MISCELLANEOUS.

Mayou, M. S.—An unusual form of lamellar cataract. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 88.

Marshall, C. Devereux.—Posterior lenticonus. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 89.

Parsons, J. Herbert.—Unusual opacity in both lenses. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 89.

Fisher, J. Herbert.—Coralliform cataract. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 90.

Werner, L.—Unilateral neuro-retinitis (? due to chlorosis); rapid development of star-like changes at the macula lutea. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 93.

Parsons, J. Herbert.—Folding of retina in glaucoma cup. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 99.

Thompson, A. Hugh.—Central senile choroiditis. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 118.

Isola, Alberico.—Phantom tumours of the orbit. (*Pseudo tumor orbitario.*) *Archivos de Oftalmologia Hispano-Americanos*, October, 1904, and *Ann. de Oftal.* September, 1904.

It is always difficult, says **Isola**, to diagnose correctly the nature of a swelling in the orbit; many conditions may imitate the presence of a tumour, and, on the other hand, a tumour may be readily mistaken for some more innocent disease. Exophthalmos, the most important symptom of tumour, is common also to many other processes, some of which may have no connection with the contents of the orbit. The following case shows the difficulties with which the diagnosis

is surrounded.—A man, aged 23 years, came to the hospital, complaining that his eyelids had suddenly become swollen, and that he was suffering pain around the eye. Examination showed congestion and oedema of the conjunctiva, and slight ptosis, in addition to the signs of which the man had spoken. Under observation, the swelling grew more marked, the eye became proptosed, and in a few days it was possible to feel a hard mass in the orbit both above and below the eye ; all movements were lost. It seemed clear that there was a tumour pressing the globe forward, so that it was decided to explore the orbit by Krönlein's method and to treat the conditions found. At the operation a sarcomatous-looking mass was seen filling the orbital cavity and involving all the contained structures ; the eye was removed, and, with it, the orbital contents. A few days later the second eye became affected, and Isola thought the prognosis very grave ; about that time, however, the pathological report of the nature of the mass was received, shewing it to be merely inflammatory tissue. The disease was, in fact, a simple cellulitis.

HAROLD GRIMSDALE.

Harman, N. Bishop.—**A simple eye socket for use in demonstrating operations on excised eyes.** *Ophthalmic Review*, January, 1905.

Harman suggests the following as a convenient and easily made apparatus for operating upon excised eyes. A cardboard box, 4 in. by 3 in. by 1½ in., is taken, and a slab of yellow soap is placed into it. It is covered with the lid, in which are two slits, cut so as to resemble the palpebral fissure. Beneath these slits two sockets are scooped out of the soap, which receives the cut eye ; then the lid is put over the eye, and kept in position with elastic bands. The slippery soapy surface allows the eye to move freely, and thus the conditions present in life are closely simulated.

C. D. M.

Stewart, W. R. H.—**A case of suppuration of the eyelid and supra-orbital region following cauterisation of the nasal regions.** *Lancet*, 27th May, 1905.

Three days after Stewart had cauterised the right inferior turbinate bone, the patient—a lad, aged 16 years—developed cellulitis of the corresponding eyelid and supra-orbital region.

Ring, H. W.—**Report of a case of acute glaucoma incited by the use of euphthalmine for diagnostic purposes.** *Trans. American Ophthal. Society*, Vol. X (1903). p. 109.

Ring placed two drops of a 5% solution of euphthalmine

into the left eye of a patient, aged 56 years, for the purpose of facilitating examination of the fundus with the ophthalmoscope. Within a few hours pain came on in the eye and corresponding side of the head, and continued for two weeks. The eye became inflamed and sight much impaired. When the patient was seen a fortnight after the euphthalmine had been used, the left eye was in a condition of acute glaucoma. An iridectomy relieved the symptoms.

Suker, George F.—Concerning the terms **Antimetropia** and **Anisometropia**; **Brachymetropia** and **Hypometropia** in place of **Myopia**; **Hypermetropia**; and **Hyperopia**. *Ophthalmic Record*, August, 1903.

Poulard, A.—**Staphylococcal infection of the conjunctiva.** (*Infection staphylocolique de la conjonctive.*) *Archives d'ophtalmologie*, octobre, 1905.

Infection of the conjunctiva by staphylococci is rare, according to **Poulard**, who has met with the condition nine times only during the last $2\frac{1}{2}$ years among a considerable collection of cases of conjunctivitis. This particular form of conjunctivitis is characterised by unilaterality, moderate mucopurulent secretion, the formation of easily detachable pellicles, long duration, and tumefaction and tenderness of the preauricular gland. It is preceded by some palpebral infection, such as hordeolum or blepharitis. The cornea remains intact. Staphylococci are found in cover-glass preparations of the discharge, and in media inoculated with that fluid.

S. S.

de Lapersonne, F.—**Acromegaly and bitemporal hemianopsia.** (*Acromégalie et hémianopsie bitemporale.*) *Archives d'ophtalmologie*, août, 1905.

Apropos a case of acromegaly in a woman of 49 years, **de Lapersonne** insists upon the diagnostic value of bitemporal hemianopsia and the aid to be obtained from radiography. The communication ends with some more or less general remarks upon the gigantism and its relationships to acromegaly.

S. S.

Holden, Ward A.—**A case of mind-blindness, unique in that the entire mesial surface of both occipital lobes and both optic radiations were preserved.** *Trans. American Ophthalmological Society*, Vol. X., Part II (1904), p. 286.

A man of 45 years staggered one day in the street, and on reaching home, was found to be numb on one side, and to be

unable to speak intelligibly. On the next day the attack had passed away. Some $5\frac{1}{2}$ years later the patient came home one night feeling ill. Next day he had become apparently blind. His mind was confused. His left arm and leg were very weak. He became emotional and depressed, and the victim of delusional insanity, and was removed to an asylum. When examined by Holden no cause could be made out for the blindness, which appeared now and then to lift, so that the patient became aware of the presence of people in the room, and so forth. The man finally succumbed to enteritis, ten months after Holden's first examination of the eyes. Briefly, the patient presented, then, dementia after hemiplegia, along with aphasia, apraxia, and an interference with sight which most of the time seemed to amount to total blindness. A rough examination of the brain revealed the following changes: the vessels exhibited many patches of sclerosis, and the parieto-temporal branch of each middle cerebral artery was occluded from its point of origin. In this way softening had been caused in an extensive area in each hemisphere, including the angular and supramarginal gyri, and reaching back on each side nearly to the tip of the occipital lobe. The mesial surface of the occipital lobes was free from any trace of softening. In a frontal section 4.5 cm. anterior to the tips of the occipital lobes the softening of the cortex on each side was found to extend only to the upper margin of the tract of white matter whose lower portion is supposed to contain the optic fibres. Holden's case therefore differs from ordinary cases of mind-blindness in that the calcarine cortex and the optic radiations were intact. In other words, the primary visual pathway from retinae to calcarine fissures was normal. At the same time softening of the angular gyri and the adjacent parts (in which the higher visual centres are thought to lie) gave rise to such disturbance of vision that it was a question much of the time whether the patient retained any power of visual perception. The case shows that extreme disturbance of vision may be brought about by lesions in the higher cortical visual centres alone. S. S.

Montano.—The uses of prisms, and a new system of numeration. (*El prisma, sus aplicaciones en clinica y un nuevo sistema de numeracion decimal.*) *Anales de Oftalmologia*, Agosto, 1904.

Montano proposes to number prisms by their angle of deviation in miligons, and to note the position of the apex rather than that of the base, as at present is usual. A miligon is the angle subtended by a $1/1,000$ part of the circumference.

HAROLD GRIMSDALE.

Winseimann, (Berlin).—Clinical Notes. (Observations Cliniques (A.) Deux cas de vision colorée passagère et intermittente. (B.) Un cas d'ophtalmoplegie progressive. (C.) Perte de la vision à la suite de l'observation d'une éclipse.) La Clinique Ophthalmologique, 25th March, 1903.

(A.) (1) Lady of 59 with diminished V.A., contracted fields, and migraine with scintillating scotoma. Sensations of coloured light between the attacks of migraine. Diagnosis, probably hysteria. (2) Man of 38 supposed to present signs of cerebral tumour. V.A.R. $\frac{6}{7}$ L. $\frac{6}{7}$. Hyperæmia nasal half of disc, engorgement of veins. Concentric contraction of visual fields for white and colours. Later, subjective visual sensations—of central origin—and violent head pains. V.A.R. and L. $\frac{6}{7}$ at commencement of examination, but rapidly decreasing from fatigue. Inversion of the colour limits. Oph.: emmetropia, marked hyperæmia of discs. Diagnosis, hysteria.

(B.) Signs of tabes appearing, after concussion of the spinal cord, in a man of 43, who had had syphilis 20 years ago. Under iodide of potassium, improvement in the general tabetic symptoms, but progressive ophthalmoplegia of the right eye.

(C.) A girl of 21 years lost the sight of the right eye after watching an eclipse of the sun. Seen three years later, the eye was divergent, vision = counting fingers, pupil reactions normal. Contraction of field, and central scotoma of 20° involving the fixation point. Oph.: at the macula a deep red spot, the size of a pea.

W. ERNEST THOMSON.

Wolffberg.—A rare case of one-sided amaurosis partialis fugax. (Ein seltener Fall von einseitiger Amaurosis partialis fugax.) Woch. f. Therapie u. Hygiene des Auges, 1 April, 1904.

A medical man, aged 43 years, addicted to tobacco and alcohol, whilst reading, and smoking a strong imported cigar, was suddenly taken with a disturbance of sight due to a central scotoma of the right eye. The defect lasted from one to two minutes, and recurred twice in the course of the next few minutes. There was no headache, or disturbance of the general health; pallor of the face was the only thing noticed besides failure of sight. Wolffberg, who examined the patient during an attack, found some hyperæmia of the optic disc, and a large absolute central scotoma in the visual field of the affected eye. Abstinence from tobacco and alcohol was followed by freedom from scotoma. Wolffberg differentiates the symptoms in the foregoing case from ordinary scintillating scotoma (*Flimmerskotom*).

MAX P.

REVIEWS.

Dictionary of Ophthalmic Terms. By JOHN WELSH CROSKEY, M.D., Philadelphia, Penna., U.S.A. Philadelphia : HENRY B. CROSKEY & Co., 1906. Small 8vo., pp. 36. Price, 25 cents.

Dr. Croskey has given us a useful little handbook containing the principal terms used in ophthalmology. After careful reading and comparison of the lists with similar ones we find that we can unreservedly recommend the work to those who are interested in ophthalmic nomenclature.

C. A. O.

Transactions of the American Ophthalmological Society, Vol. X., p. 3. Hartford : Published by the Society. 1905.

The *Transactions of the American Ophthalmological Society* has just reached us. It reports the proceedings of the forty-first annual meeting, held at Boston, Mass., in May, 1905, eighty members being present on the occasion. The volume, one of 654 pages, is liberally illustrated, and contains numerous communications by members of the Society. Some of these papers, however, have already been published in various medical periodicals.

Sociedad Oftalmologica Hispano-Americana. Actas de la Segunda Asamblea Anual. Madrid, 15 à 18 Mayo de 1905. Barcelona : Imprenta de la Casa Provincial de Caridad.

This volume of 298 pages presents the work of the Hispano-American Ophthalmological Society at its second session, and consists of a short inaugural address by Dr. Castresana, on the Sense of Vision, and a number of papers read during the four days of the Congress by the members. Of the 63 members, 11 contributed 18 communications to the Society. These have already been in some part noticed in the pages of this journal as they appeared in the *Archivos de Oftalmologia* during the past year ; reading them again, as a whole, one cannot help being struck by the fact that the clinical side of surgery appears to appeal almost solely to the authors, and that not one paper deals with a purely pathological subject. In this the proceedings may appear to fall short ; but the interest of the clinical side is well maintained.

H. G.

The Ophthalmic Year Book, Vol. III. By EDWARD JACKSON and GEORGE E. DE SCHWEINITZ. Denver, Colo., U.S.A. : The Herrick Book and Stationery Company. 1906. Price, \$2

The Ophthalmic Year Book for the year 1905, by Edward Jackson and George E. de Schweinitz, has recently been issued.

It has appeared somewhat earlier in the year than either of its two forerunners, although not so early as the energetic editors of this useful publication could have wished. Small wonder! It is almost pathetic to read in the preface that "more than a month after the close of the year 1905, the files of some of the most important ophthalmic journals were still incomplete, and some numbers were not received until the end of March." Certainly, the delay that appears to be inevitable from the issue of some of the periodical literature of eye work reflects little credit upon either the editors or the publishers. It is exasperating to subscribers. Apart from all this, the volume before us is a monument to the untiring industry of the editors. Its contents are well arranged and very complete, and it is illustrated. It should be in the hands of every English-speaking ophthalmologist. There is scarcely a communication of the least note published during the year 1905, to which a reference may not be found in this unpretentious-looking little volume.

A Manual of Diseases of the Eye. By CHARLES H. MAY and CLAUD WORTH. Large crown. London: Baillière, Tindall, & Cox. 1906. Price 10/6 net.

This handsome and convenient manual of four hundred pages is more liberally illustrated with figures, coloured and otherwise, than any book of similar size that we have yet seen. The authors' claim, that its "coloured plates form a fairly complete ophthalmoscopic atlas," is not without justification. All this is excellent, especially from the students' standpoint, for whom and for junior practitioners, May and Worth appear more particularly to have written *Diseases of the Eye*. It is, in fact, essentially an elementary text-book, leaving references altogether on one side, paying scant attention to rare affections, but dealing at considerable length with the commoner diseases and operations. This is the aim the writers have proposed to themselves, and we cannot doubt but that the book will be a popular one amongst the class for whom it is more particularly meant. As regards arrangement, the book follows the well-trodden path, beginning with chapters on the objective and subjective examination of the eye, followed by description of diseases as they affect each anatomical structure of the eye, glaucoma, amblyopia, intra-ocular tumours, optical principles, ametropia, strabismus, heterophoria, and finishing with a chapter upon therapeutics and rules for operations on the eye. The information given is trustworthy and pleasantly conveyed. In fact, sins of commission are conspicuous by their absence. On the other hand, the very plan of the book has lent itself to what may appear to some as certain sins of omission. Thus, that useful means of diagnosis, the so-called transillumi-

nator, does not appear to be mentioned, neither does the Zeiss corneal microscope nor the Berger binocular loupe, the latter of which is much more useful than the corneal magnifier, of which a figure is given on page 19. Again, as regards therapeutics there are omissions—as, for example, no mention is made of the newer local anaesthetics, alypin, stovaine, and novocaine ; of the analgesics, dionine and acoine ; of the mydriatics, eumydriane and methylbromide of atropine ; and nothing is said as to the treatment of disease by the introduction of remedies, antiseptic or otherwise, beneath the conjunctiva. It may be that, in the authors' view, these various medicaments and methods have not yet advanced beyond the experimental stage, and in that event we have a reason (although, to our mind, a somewhat inadequate one) to account for their omission from what is in most respects a complete text-book of ophthalmology. Print and illustrations leave nothing to be desired. They are of the best ! May and Worth's *Diseases of the Eye*, in our opinion, is bound to enjoy considerable vogue amongst beginners in ophthalmology.

Ueber Symptomatologie und Diagnose der intraoculären Tumoren und deren Verhalten zu den übrigen Körperorganen. Von Prof. Dr. O. LANGE, Augenarzt am herzoglichen Krankenhouse in Braunschweig. Halle a. S. : Carl Marhold. 1906. p.p. 57. Price, 1:20 mark. **The Symptomatology and Diagnosis of Intraocular Tumours.** By Dr. O. Lange.

The chief subjects dealt with in this *brochure* are sarcoma of the uveal tract and glioma of the retina. Dr. Lange specifies the forms of sarcoma described by different authors as being capable of arrangement under the heads of round-celled and spindle-celled sarcoma, angio-sarcoma, alveolar sarcoma, giant-celled sarcoma, myxo-chondro and osteo-sarcoma, myo-sarcoma of the ciliary body, and cysto-sarcoma. Sarcoma of the uvea usually forms a melanotic tumour, simply, as Fuchs points out, because it develops in a region containing a large quantity of pigment, and he estimates the proportionate frequency of the pigmented to the unpigmented form to be as 88 : 12 per cent. Kirschbaumer, however, considers the proportion of melano-sarcoma to leuco-sarcoma to be as 59·7 : 40·3 per cent. Fuchs' view has not been universally accepted, for Ribbert, with whom Ginsberg is in accord, is distinctly of opinion that melanoma is a tumour of quite as specific a type as chondro-sarcoma, and that it results from the proliferation of pigment cells or chromatophores. Hence, he thinks the term melano-sarcoma inappropriate. He refers its origin to a disturbance or disordered condition of the tissues in embryonic development. Schieck maintains

that every melano-sarcoma of the uvea commences as an unpigmented round-celled sarcoma, which proceeds to develop into an unpigmented spindle-celled sarcoma, that again passes into a melano-sarcoma; and, like Ribbert, he derives every melano-sarcoma from pre-existing physiological chromatophores. In regard to the etiology of uveal sarcomata, a certain number appear to originate in injury. Thus, Fuchs found in 259 cases, that 29 followed, and were attributable to, that cause; but here again larger statistics are required. Hirschberg and others express a different opinion. In regard to heredity, Dr. Lange believes that it plays no part in the production of sarcoma. Sarcoma of the iris is usually melanotic, and sometimes develops from a congenital pigment spot in the iris. It is traversed by vessels which may be seen with a hand-lens, and it favours the lower half of the iris. It has been several times seen to affect the opposite iris symmetrically. It frequently leads to haemorrhages into the anterior chamber. It may interfere with vision by more or less occluding the pupil, or by augmenting the intra-ocular pressure, or by occasioning dislocation or opacity of the lens. The chief distinctions between a melanoma and a melano-sarcoma are, that the latter enlarges, whilst the former does not, and that the colour of a congenital melanoma is black, whilst melanotic sarcoma is brownish. Leuco-sarcomata are rarely seen in the iris. They may be mistaken for tubercle or gummata, but these always present inflammatory symptoms at an early period. Moreover, tuberculous growths have very few vessels, and gummata no vessels at their most prominent part, although they have a vascular corona or ring at their base. Sarcomata of the ciliary body are more frequent than those of the iris. They are usually melanotic and are composed of spindle cells. They generally commence as a well-defined spot, although several cases of annular sarcoma, or sarcoma affecting the entire ciliary ring, have been observed. In the earlier stages of growth they cannot be discerned with the ophthalmoscope and the diagnosis is difficult, although an enlargement of the ciliary arteries may cause suspicion. In its further growth the tumour may either project into the anterior chamber, or, growing inwards, it may dislocate the lens and occasion cataract; or, lastly, it may grow backwards.

The diagnosis may be established, he thinks, if in the absence of any injury, and although the tumour may be itself invisible, there is inequality in the depth of the anterior chamber, owing to the pressing forward of a segment of the iris by the luxated lens, whether cataractic or not. Primary sarcoma usually develops first in the choroid, and Lange distinguishes three forms, to which he has applied the terms *fungus*, *pedunculated*, and *diffuse*,

the last-named being the rarest, but implicating the ciliary body and the iris. Primary sarcoma occurs most frequently in the choroid, and the nearer the posterior pole it is situated, the sooner is vision affected. If it be situated on the temporal side, it may for some time pass unnoticed, because, owing to the law of projection, the failure of vision affects the nasal side of the field of vision which is covered by that of the opposite eye. Whilst the tumour is small, the retina is not detached, but only bulged forward, and under the ophthalmoscope the elevation is not mobile during movements of the eye, but is sure to be spotted with pigment and traversed by vessels which correspond neither with those of the retina nor of the choroid. Dr. Lange throws doubts upon Parsons' statement that even in an early stage of sarcoma of the choroid there is some serous effusion beneath the retina in the most dependent portion of the eye. At a later period, no doubt, fluid is sometimes poured out, which separates the choroid from the sclera, and this effusion is especially prone to occur if the globe has been opened. At a still later period an exudation of a non-inflammatory serous fluid takes place from the choroid, which leads to what may be termed a secondary detachment of the retina. This detachment is not always to be easily distinguished from a primary or idiopathic detachment, but it may be remembered that when an intraocular tumour is present the tension is generally increased, whilst in true detachment of the retina it is usually diminished. Only a few observations have up to the present time been recorded of apparent sarcomata resulting from metastasis in the uveal tract. Fuchs and Leber, both of whom have studied intraocular tumours, are at issue on this point, but the concensus of opinion upon the subject appears to be in favour of the occurrence of metastasis. On the other hand, sarcomata in the uveal tract may originate tumours elsewhere by metastasis, and the dictum of Virchow may be remembered, that scarcely any evidence can be adduced of primary melan sarcoma in an internal organ. Metastasis of true carcinoma of various internal organs to the eye and its annexes is of frequent occurrence, and usually affects both sides in the form of diffused flat carcinoma of the choroid. In such cases, the seat of the primary carcinoma is usually the mamma, and the disease commonly first attacks the left eye. Primary epithelial neoplasms in the uveal tract are very rare. The few cases of adenoma that have been recorded as adenoma, have had their seat in the ciliary body.

Glioma retinæ, Dr. Lange observes, is the only primary neoplasm of the retina. It appears to proceed from the abnormal growth of displaced glial cells and their processes. Greeff has

applied to it the term of neuroglioma ganglionare. In its earliest stage it contains no blood vessels. In its further progress it may project into the vitreous humour, constituting the endophytic form, or into the sub-retinal space, representing the exophytic form. In the first form the retina is always separated ; in the latter it becomes fused with the retina. Retinal glioma may undergo various regressive metamorphoses, such as fatty degeneration, calcification, caseination, and pigmentation. It is essentially a disease of earliest infancy and may even be congenital. Several cases are recorded of members of the same family being affected. Some believe it to be associated with difficult delivery, the pressure exerted causing haemorrhage and deranging the cellular elements of the retinal layers. The appearances presented in the earliest stages are described by Lange, who remarks that very experienced ophthalmologists have often been mistaken in their diagnosis. Haab found that in twenty cases of enucleation performed for the removal of gliomatous eyes only fifteen were true glioma, the remaining five presenting other forms of disease. In the diagnosis of glioma, besides the cardinal point of its appearance at a very early age, care should be taken to exclude suppuration, haemorrhage, connective tissue degeneration and shrinking of the vitreous, and other inflammatory conditions leading to the detachment of the retina. Increase of tension with vascularity of the globe does not militate against glioma, but rather favours it if it be recognised that considerable increase of tension may co-exist without increased vascularity. The whole globe, and especially the cornea, may increase in size as the result of persistent intraocular pressure, and this increase in size in an eye, otherwise suspected of glioma, may be regarded as being in favour of the presence of that disease. So also do freely moving white corpuscles or bodies, for they proceed from the gliomatous tumour after it has burst through the retina. A cysticercus renders the diagnosis very difficult, for although the absence of vessels in that affection is a marked feature, yet in some instances no vessels are visible on the surface of a glioma. Choroidal tuberculosis sometimes renders the diagnosis difficult, but this usually affects children more advanced in years. These and other conditions may be, and have been, included under the collective term "pseudo-glioma," a term which, however useful clinically, must be carefully eschewed from a scientific point of view. Difficulties in diagnosis may arise from obstacles to ophthalmoscopic examination, such as leucomata, opacity of the lens, irido-cyclitic inflammatory products, and the like, and the term cryptoglioma has been applied to such cases.

No instance of permanent arrest of the progress of a true

glioma has ever been observed. It attacks the optic nerve as it extends backwards, but has never been seen to affect the opposite eye through the chiasma. Blindness of the opposite eye, nevertheless, has been described 25 times in 497 cases of glioma without recognisable gliomatous mischief. Glioma of the retina, as compared with sarcoma of the uveal tract, rarely gives rise to true extra-orbital metastasis. When cerebral troubles are observed, they are due to direct continuity of tissue. In regard to treatment, as glioma is an extremely malign affection, enucleation should be performed at the earliest period possible. Lange gives the details of an interesting case that fell under his own observation. The first eye terminated in acute panophthalmitis, without perforation, the second in panophthalmitis with perforation.

HENRY POWER.

NOTES AND ECHOES.

The San Francisco Holocaust. PROFESSOR HIRSCHBERG in the May number of the *Centralblatt für praktische Augenheilkunde*, gives publicity to the following communication from Dr. Pischel, president of the San Francisco Ophthalmological Society:—"1817, California Street, San Francisco. April 28th, 1906. Dear Professor Hirschberg,—Office burnt out, investments lost, house saved, family well, hale and hearty. I will make a new start again."

* * * * *

READERS OF THE OPHTHALMOSCOPE are familiar with the important work done in Egypt by the travelling ophthalmic hospitals under the control of Mr. A. F. MacCallan. According to Lord Cromer's "Report on Egypt for 1905," these flying camps will eventually be superseded by a series of ophthalmic hospitals which it is proposed to erect in each of the fourteen Mondirieh towns. A sum of £E7,000 has been set aside in the estimates for the year, in order that a start may be made with this important innovation.

* * * * *

The meaning of the word "Optician." THE following paragraph is taken from the "Literary Notes," published by the *British Medical Journal* of June 9th last.

"There has been much discussion as to the use of the word

"optician," which, according to the terms of Johnson's definition—"one skilled in optics"—is inapplicable to makers or sellers of spectacles. Yet the designation would be rejected by the ophthalmologists, and it affords a convenient means of distinguishing the mechanic who makes the glasses from the professional man who prescribes them. The vaulting ambition of some "sight-testing opticians" has led to the suggestion of "opsiologist," "ophthalmician," "optologist," "optist," "opsiométrist," "optometrist," "ophthalmometrist," and even "ophthalmiater"! What's in a name? Well, there may be a great deal when it happens to convey a wrong meaning, which is likely to mislead the unwary, and indeed would appear to be intended to enable enterprising tradesmen to sail under false colours. The Romans knew the difference between the *medicus ocularius* and the *faber ocularius*. With us the *faber* encroaches so much on the *medicus* that the latter has had to discard the good old English word "oculist" and call himself an "ophthalmic surgeon" lest equivocation should undo him."

* * * *

Appointments. MR. H. R. SWANZY has been nominated as president of the Royal College of Surgeons in Ireland for the forthcoming year. It is a significant tribute to the position ophthalmology has attained among surgical specialties that the chief office in two of the Royal Colleges should be filled by ophthalmic surgeons, namely, by Mr. J. Tweedy in England and by Mr. Swanzy in Ireland. Mr. Charles Higgins has been appointed consulting ophthalmic surgeon and Messrs. H. L. Eason and A. W. Ormond, ophthalmic surgeons to Guy's Hospital, London.

* * * *

Military Service in France. THE French Government has issued (October, 1905) revised instructions relative to the visual tests for military service.

These tests replace those instituted in January, 1902. For service in the army the candidate must have a visual acuity of $\frac{1}{2}$ or more in one eye, and at least $\frac{1}{10}$ in the other eye—correction by spherical glasses being allowed.

Those whose visual acuity—after correction by spherical glasses—ranges between $\frac{1}{2}$ and $\frac{1}{4}$ in one eye and at least $\frac{1}{10}$ in the other eye, are relegated to the auxiliary service.

Those whose visual acuity is equal to or less than $\frac{1}{10}$ in one eye, and less than $\frac{1}{2}$ in the other eye (with correction) are exempted from service.

Myopia not exceeding 7 D., on condition that the visual acuity with correction attains to the standards specified above, is compatible with service in the ordinary or auxiliary forces respectively. Myopia complicated by extensive and progressive choroidal lesions, and where the vision is below the standards mentioned above, is incompatible with all service and entails exemption.

Hypermetropia and astigmatism are compatible with army or auxiliary service if the vision comes up to the standards mentioned after correction with glasses.

In certain cases of amblyopia and amaurosis, where there is no appreciable change in the eyes, the expert must be guided by information supplied by the civil authorities and by the results of tests calculated to discover simulation. Temporary exemption from service may be given for keratitis, ulceration, and opacity of the cornea capable of improvement, and for recent muscular paralysis which resists treatment.

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The Third Annual Course on Ophthalmology has been arranged from July 9th to 21st. The main idea of the Course is to demonstrate (on actual patients as far as possible) the whole range of Ophthalmology, in order to make the reading of a text book more profitable than can be the case when relying merely on pictures.

The first week will be mainly devoted to demonstrating the practical examination of eye patients, the use of the Ophthalmoscope, and the work of refraction. During the second week the work will be more specialised.

As well as the mere routine cases, there will be a large selection of cases of unusual interest for the benefit of those who are more experienced in eye work. Altogether some 500 cases will be present for demonstration.

SYLLABUS.

MONDAY, JULY 9th.

- | | |
|---------|---|
| 10—11 | Clinical lecture on the External Examination of the Eye, and Visual Acuity ; by the Reader. |
| 11.30—1 | Practical demonstrations of the above ; by the Hospital Staff. |
| 2—3 | Clinical lecture at the Radcliffe Infirmary ; by Professor Osler. |
| 3—5 | Practical instruction at the Oxford Eye Hospital ; by the Hospital Staff. |
| 8.30 | Lecture on the Ophthalmoscope ; by the Reader. |

TUESDAY, JULY 10th.

- | | |
|---------|--|
| 10—11 | Clinical lecture on Refraction ; by the Reader. |
| 11.15—1 | Practical demonstration on the methods of examination of Refraction ; by the Hospital Staff. |
| 2—3 | Clinical lecture at the Radcliffe Infirmary ; by Professor Osler. |
| 3—5 | Practical instruction at the Oxford Eye Hospital ; by the Hospital Staff. |
| 8.30 | Practical instruction in the Ophthalmoscope ; by the Hospital Staff. |

WEDNESDAY, JULY 11th.

- | | |
|-------|---|
| 10—11 | Clinical lecture on the Field of Vision ; by the Reader. |
| 11—12 | Practical demonstration of the Field of Vision ; by the Hospital Staff. |
| 12—1 | Clinical lecture at the Radcliffe Infirmary ; by Professor Osler. |
| 2—6 | Practical instruction at the Oxford Eye Hospital ; by the Hospital Staff. |

THURSDAY, JULY 12th.

- | | |
|------|--|
| 10—4 | Practical instruction at the Eye Hospital ; by the Hospital Staff. |
|------|--|

FRIDAY, JULY 13th.

- | | |
|------|--|
| 10—1 | Special demonstrations required by individuals. |
| 2—3 | Clinical lecture at the Radcliffe Infirmary ; by Professor Osler. |
| 3—5 | Practical instruction at the Eye Hospital ; by the Hospital Staff. |
| 8.30 | Lecture on Functional Troubles of the Eye ; by the Reader. |

SATURDAY, JULY 14th.

- | | |
|------|--|
| 10—2 | Practical instruction at the Eye Hospital ; by the Hospital Staff. |
|------|--|

MONDAY, JULY 16th.

- | | |
|----------|---|
| 10—11.15 | Lecture on the Choroid, with lantern illustrations ; by Mr. Adams Frost. |
| 11.30—1 | Lecture on the Optic Nerve and Retina, with lantern illustrations ; by Mr. Adams Frost. |
| 2—5 | Clinical instruction and operations at the Eye Hospital ; by the Hospital Staff. |
| 8.30 | Lecture on the Conjunctive, with lantern illustrations ; by Mr. Lawford. |

TUESDAY, JULY 17th.

- | | |
|----------|--|
| 10—11.15 | Lecture on the Cornea, with lantern illustrations ; by Mr. Lawford. |
| 11.30—1 | Lecture on the Orbit and Lacrymal Structures ; by Mr. S. Stephenson. |
| 2—5 | Clinical instruction and operations at the Eye Hospital ; by the Hospital Staff. |
| 8.30 | Lecture on Colour Vision, with illustrations ; by the Reader. |

WEDNESDAY, JULY 18th.

- | | |
|----------|--|
| 10—11.15 | Lecture on Ocular Therapeutics ; by Mr. S. Stephenson. |
| 11.30—1 | Lecture on the Lens ; by Mr. Richardson Cross. |
| 2—5 | Clinical instruction and operations at the Eye Hospital ; by the Hospital Staff. |
| 8.30 | Lecture on Motor defects of the Eye ; by Mr. Priestley Smith. |

THURSDAY, JULY 19th.

- | | |
|-------------|---|
| 10—11.15 | Lecture on Glaucoma ; by Mr. Priestley Smith. |
| 11.30—12.30 | Lecture on the Medical aspect of Ophthalmology ; by Professor Osler. |
| 2—5 | Clinical instruction and operations at the Eye Hospital ; by the Hospital Staff. |
| 8.30 | Lecture on Congenital Anomalies of the Eye, with lantern illustrations ; by Mr. Treacher Collins. |

FRIDAY, JULY 20th.

- | | |
|----------|---|
| 10—11.15 | Lecture on the Iris and Ciliary Body, with lantern illustrations ; by Mr. Treacher Collins. |
| 11.30—1 | Lecture on the influence of the Eye on Headaches and Migrain ; by the Reader. |
| 2—5 | Clinical instruction and operations at the Eye Hospital ; by the Hospital Staff. |
| 8.30 | Lecture on the Pathology of the Eye, with lantern illustrations ; by Mr. Parsons. |

SATURDAY, JULY 21st.

- | | |
|----------|---|
| 10—11.15 | Further Lecture on the Pathology of the Eye, with lantern illustrations ; by Mr. Parsons. |
| 11.30—12 | Lecture on "Family" diseases of the Eye ; by Mr. Nettleingham. |

The Course will be illustrated by the lantern. Fee for the Course, £5 5s. Gentlemen attending the Course will be provided with board and residence at Keble College at the rate of 7/- per day.

For further particulars apply to ROBERT W. DOYNE, M.A., Margaret Ogilvie's Reader in Ophthalmology in the University of Oxford, 34, Weymouth Street, London, W.

Early application is desirable, as the numbers must of necessity be strictly limited. Preference will be given to Graduates of Oxford.

THE OPHTHALMOSCOPE.

A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

VOL. IV.—No. 8].

AUGUST 1, 1906.

[ONE SHILLING.

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AN IMPROVED ELECTRO-MAGNET FOR USE IN EYE SURGERY.

BY

FRANK C. PARKER, M.D.,

ASSISTANT SURGEON, WILLS HOSPITAL; FELLOW COLLEGE OF PHYSICIANS, PHILA.;
OPHTHALMOLOGIST HOSPITAL FOR THE INSANE, S.E. DIST. PENNA.;
OPHTHALMIC SURGEON AND RADIOPHGRAPHER, CHARITY HOSPITAL,
NORRISTOWN, PA.

The electro-magnets of the present day used in eye surgery, while powerful and capable of performing their work well, still leave room for some improvement, according to the writer's idea.

The operator, after adjusting his magnet for the extraction of a foreign body, must ask someone, usually an assistant or nurse standing near by, to turn "on" the current. In other words, he does not have easy and personal control of his magnet, unless, perchance, he employs one of the cumbersome foot switches which are to be found on the market.

It often happens, especially in hospital clinics, for the operator and patient to be surrounded by onlookers. The surgeon gives the word to turn "on" the current; the assistant controlling the switch, is usually at the back of the mass of humanity surrounding the operator, and frequently is out of his sight. After giving the word, the reply is heard that the current is "on," but there is no other means of knowing that this is so, and that the magnet is in working order, unless some metal instrument is brought into contact with the tip.



FIG. I.

The magnet, illustrating button, indicator, bevelled core with tip attached, and plug, the latter detached.

If this latter means is not used, and it cannot be very well employed when once the magnet is adjusted in or near the eye, the operator does not know positively whether or not the connecting wires, etc., are in perfect condition and his magnet "magnetized," even although he is aware that the switch is turned properly.

Another drawback to the large magnets now in use is the awkward position in which they have to be held at times, and, considering their weight, this is of no small importance when steadiness and accuracy are at stake.

The tips now employed consume quite a little time in their insertion and removal, owing to the fact that they are screwed into the core and held in place by an unnecessarily long thread. This is especially trying at times during an operation when a change of tip is necessary.

In the magnet described below (Fig. I) the above shortcomings have, I believe, been improved upon materially. The magnet measures eight inches in length, with one and a half inches of the core projecting. The diameter is three inches, while that of the core is one and one quarter inches. The weight is eight and a quarter pounds.

There is a small button on the end nearest the operator. This button controls a switch within the magnet, and by a slight pressure of the thumb, which rests naturally upon it, the current can be thrown "on" at will. Upon release of this pressure, the button springs back into place, thereby automatically shutting "off" the current.

The operator knows positively that the current is "on" only while he is pressing the button, thus saving him the annoyance of asking frequently whether or not the current is "on" or "off." The magnet is accordingly under absolute and strictly personal control at all times.

Further, if failure to extract the foreign body is encountered at the first trial and a change of tip is desired, the current can be thrown "off" immediately as the tip emerges from the wound, and as the magnet is frequently moved several inches to one side or the other, this acts as an additional safeguard against changing the position of the foreign body within the eye, which would still be under the influence of the magnet if it happened to be anywhere near. This point the writer considers of no small importance.

If a foreign body has been localized by means of the X-rays, the operator knows precisely where the tip should be placed to secure the best attraction, and, to the author's mind, the current should only be "on" when the tip is in the proper position and during withdrawal. After the tip emerges, the current has no use save to cause a shifting of the foreign body to a new location should the magnet be carried thoughtlessly around the eye with the current "on."

The automatic shutting "off" of the current prevents overheating and burning out of the magnet-winding should the instrument be carelessly laid aside at the completion of the operation.

In the construction of the button switch, the great difficulty has been to produce one in which arcing of the current would not take place with consequent blackening of the contact points, preventing the passage of the current. This objection has been overcome by constructing the switch upon the knife-switch principle and tapering the contact piece so that all arcing takes place above the main points of contact, thus leaving a clean contact service.

On the end of the core directly at the base of the tip is a "tell-tale" indicator which is in full view, and keeps the operator constantly posted as to whether or not his magnet is "working." This indicator consists of a small, round piece of soft iron attached to one end of a spring whose opposite end is fastened to the core of the magnet in such a way that the piece of iron is about five millimetres distant from it.

Upon pressing the button the iron attaches itself to the core with a clicking sound, remaining there until the button is released, when it springs back into place immediately, thereby giving the operator an ever-present guide as to whether or not the current is "on" or "off."

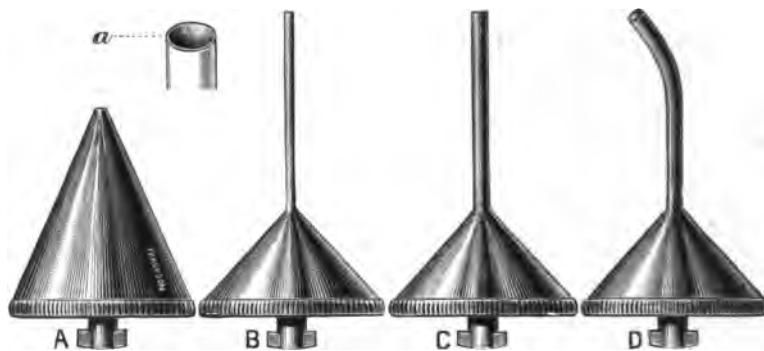


FIG. II.

Tips, actual size. *A*, *B*, *C*, and *D* show the lock attachment, while *a* illustrates the cup (enlarged).

The attachment of the tips is accomplished in a somewhat different manner from that in present use, the former being designed with the idea of quick attachment and detachment by means of a lock (Fig. II).

Secure adjustment can be made in an instant by a very slight turn of a few millimetres only, detachment being accomplished in the same manner. Thus, if a change of tips is found necessary during an operation, it can be conveniently and quickly done without waiting for the unscrewing and screwing-in process which is required at present.

The shape of the tips has been altered with the idea of giving protection to the foreign body as it passes through the incision.

There is a cup-shaped depression on the end, intended to receive the foreign body as the lips of the wound close around it with the tendency to pinch it off.

The objection will probably be raised that the foreign body will not fly into the cup but will become attached to the rim at the extreme end of the tip (Fig. III). This is true, but conditions are different as the latter is being withdrawn.

During this process as the end of the tip with foreign body attached, is passing through the incision, the lips of the wound close, and in so doing tend to push the foreign body towards the centre of the tip. As this centre is depressed, naturally the foreign body must attach itself somewhere, and this "some-

where" will in all probability, be in the cup-shaped depression. Now at this stage the foreign body is in advance of the end of

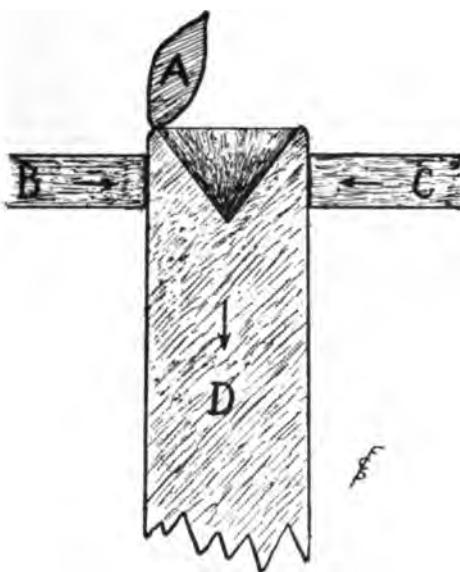


FIG. III.

Enlarged view of tip (*D*), sclera (*B*, *C*), and foreign body (*A*), attached to extreme edge of cup. In withdrawing the tip in the direction of the arrow, the scleral walls close in the direction of the arrows and push the foreign body off the rim towards the centre of the cup.

the tip, has a good hold, and is not so liable to become detached by the closing of the scleral walls (Fig. IV).

To demonstrate that the cup idea is not all theory, the writer had constructed, on an enlarged scale, two tips about one centimetre in diameter at the ends. One of these was rounded similar to those now in use, while the other contained the cup-shaped depression. To represent the sclera, a piece of sheet rubber, about three millimetres in thickness, was employed. For a foreign body, the writer made use of a ball of iron, about seven millimetres in diameter. A slit to permit the passage of the enlarged tips was cut through the rubber, simulating an incision through the sclera.

The tip with the rounded end was thrust through the opening and the iron ball placed against it as the current was turned on. The tip was gradually withdrawn and at almost every trial the edges of the incision in closing, pinched off the ball, the rounded end allowing the rubber gradually to slide up beneath the ball and separate it from its one point of attachment (Fig. V).

The tip with the cup was next placed in a similar position and a like procedure gone through. As the tip was withdrawn, the ball worked its way along until the end of the former began to

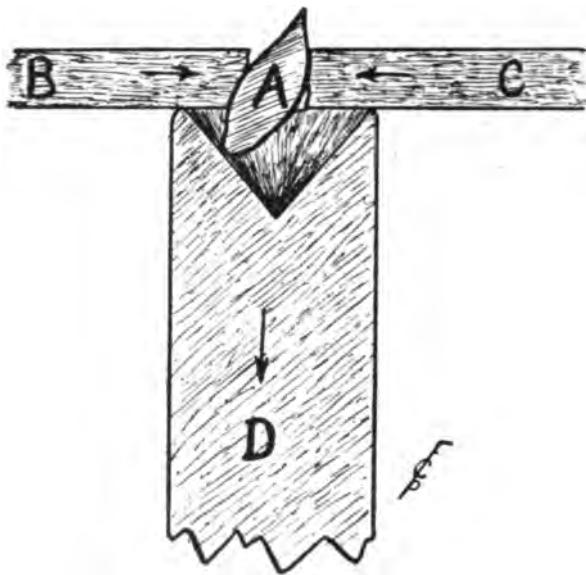


FIG. IV.

Foreign body (*A*), as it is pushed off the rim, is drawn down the side of the cup before the scleral walls unite. Thus, the end is in advance of the extreme end of the tip, has a better hold, and is protected during withdrawal.

pass through the incision. Here the ball was pushed up on to the edge of the cup, and as the tip was still further withdrawn, was pushed over the edge and down into the depression where it remained until the incision was passed, allowing the rubber to close above it.

Repeated trials seemed to prove conclusively that the cup certainly favoured the protection of the foreign body as it passed through the incision.

The writer is fully aware of the fact that all foreign bodies are not round, neither are they of a size small enough to be contained in the cup, but should the foreign body be irregular in shape, as most of them are, and should it be much larger than the cup, so that it cannot be therein contained, there would still be more chance of drawing it through the incision than would be the case with a rounded tip, as one end in contact with the tip would be received in the cup and thereby escape being caught in the wound.

The cup, of course, is not an absolute guarantee that the foreign body will be extracted in every instance at the first trial, but the claim made by the writer is that the cup will favor its passage more readily than the rounded tips in present use.

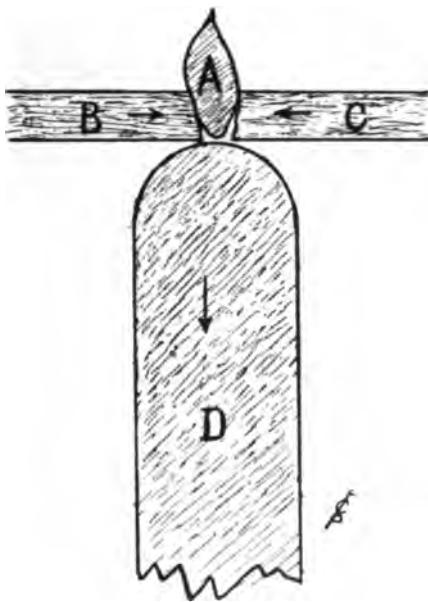


FIG. V.

Showing how easily a foreign body attached to the rounded end of a tip, may be "pinched" off by closure of the wound margins.

The shanks of the tips are of uniform thickness throughout, and are made with a very large base.

The tips are finished with a high polish, no nickelling being applied, as this reduces considerably the holding power after once a foreign body is attached.

The end of the core where tips are fastened has a bevel, enabling the magnet to be held in a natural position without grasping it end-up and trying to keep it steady (Fig. VI). With the magnet inclined slightly, a straight tip attached to the end will be found to be about vertical, so that should perpendicular penetration through the cornea be necessary, the instrument will be in a comfortable position to hold steady.

The winding of the magnet wire proper, terminates within the magnet in a plug receptacle, into which fits a plug holding the connecting wires leading to the incandescent lamp socket from which the current is obtained. Upon completion of an

operation the plug is removed, thereby saving twisting of the wires with subsequent wearing of the insulation. That the magnet has an abundance of power is shown by the fact that during a recent test it lifted over eighty pounds—about ten times its own weight.



FIG. VI.
Showing comfortable position in which the magnet can be held Contrast this with the usual "end-up" posture.

The finish of the instrument is made in keeping with other instruments found in the operating room, enabling it to be kept clean. In conclusion I wish to acknowledge my indebtedness to Mr. Joseph C. Ferguson, Junr., of Philadelphia, who has gone to much trouble in making several different models, enabling the writer to bring the magnet through its formative stages.

A CASE OF SUPPRESSION OF AQUEOUS SECRETION.

BY

D. C. LLOYD-OWEN, M.D., F.R.C.S.I.,

CONSULTING SURGEON TO THE EYE AND CHILDREN'S HOSPITALS, AND HON-
OPHTHALMIC SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM.

The following is a case in which the secretion of aqueous

humour was repeatedly suppressed without any obvious pathological change in the eye to account for such a secretory derangement.

J. B. W., *ætat* 40, a professional man who had always enjoyed good health, and with good family and personal histories, had a little soreness of the margin of the right upper lid about a week before he came up for consultation. This was followed by some blurring of sight. He consulted his family doctor, who prescribed a lotion for what he diagnosed as a "cold in the eye." As no improvement took place, he decided to have further advice.

His complaint when first seen—a week after the onset of symptoms—was a blurring of the sight of the right eye, and a slight soreness on the top of the eyeball.

The eye showed a very slight dilatation of the conjunctival veins, and a little lack of lustre of the cornea. The anterior chamber was very shallow, but the pupil was active and normal in size. There was some tenderness on pressure over the equatorial region above, and sudden movements of the eye, especially towards the right side, caused subjective light sensations. Tension—2. By retinoscopy his refraction was—2.5 D., and with this correction he read 6/6 and J.i fairly.

Left eye, normal. Vision 6/6 and J.i.

Treatment by means of pilocarpin drops, varied with atropine and dionine, produced little or no effect on the depth of the anterior chamber or the tension of the globe, and refraction and vision remained unaltered.

Three weeks after the first consultation—a month after the onset of symptoms—his sight suddenly cleared up and for some hours he could see as well with the right eye as with the left. He was not able, however, to present himself for examination before the eye had returned to its former defective condition.

A week later, he again recovered the vision of the right eye, and this time he presented himself at once. It was now found that the right eye showed no abnormality in the depth of the anterior chamber; the refraction was practically emmetropic; the cornea was as bright as that of its fellow eye; and vision was 6/6 and J.i without correction. Tension normal.

About four days later, he had another relapse, which lasted three days, and then the functions of the right eye remained normal for a fortnight. Another relapse of three days was followed by a recovery of one month's duration, and then two days' relapse was followed by permanent recovery.

On each occasion when the vision improved, the anterior chamber was found to have recovered its normal depth, the lens had returned to its normal position, the result being emmetropic

refraction and full vision without any correction, and normal tension. During the periods of relapse, the chamber became emptied, the lens came forward, producing a myopia of 2·5 D. and tension became reduced to about—2. Careful examination of the innervation of the eye and of its appendages failed to discover any departure from normal conditions, except in the one particular direction described.

In the estimation of Mr. W.'s condition, and in the testing of his vision and tension, I was on several occasions so fortunate as to have the assistance of my friend and colleague, Mr. J. Jameson Evans.

TRANSLATION.

EXCRESENCES OF THE ORA SERRATA AND THEIR OPHTHALMOSCOPIC APPEARANCE.

BY

DR. A. TRANTAS, OF CONSTANTINOPLE.*

[Translated by ERNEST THOMSON, M.A., M.D.]

The man whom I presented to you at the last meeting, a marble cutter by trade, had syphilis two years ago; for the last eight months he has had a double specific choroiditis of relapsing central type. Since, during the last two months, he has had vigorous anti-syphilitic treatment from me, this man is on the road to cure. My reason for presenting this case to you is solely because there is an ophthalmoscopic peculiarity which is of interest to eye surgeons.

If, in fact, in making an ophthalmoscopic examination of the peripheral supero-external part of the fundus, I press this part with my finger through the lid, in order to render the ciliary region at this point prominent, I can see clearly peripherally, against the illuminated fundus, a round body which sometimes appears greyish-white, and at other times shining white, according to the greater or smaller amount of light which it reflects in different positions. By transmitted light, on the contrary, it appears as a black body; now and then the darkness is more accentuated in its peripheral part, while its centre appears reddish, for it allows us to see dimly at this part the red colour of the fundus of the eye. This body is twice as big as the head of an ordinary pin. It is situated in the vitreous, behind the lens, and can be clearly seen with a four to eight dioptrē convex glass behind the ophthalmos-

*Communication to the Medical Club of Constantinople, January 20th, 1906, translated from *La Clinique Ophthalmologique*, 25 avril, 1906.

cope, according to the degree of pressure, and consequently the greater or less prominence of the ciliary region. If now, while we are looking at this body, we begin to relax the pressure, the body recoils towards the ocular wall, and in proportion to the recoil of this wall; at the very moment when the body is about to disappear from the field of observation, it becomes like a black line 5 to 8 millimetres long, directed towards the ocular wall. If we release the pressure on the wall just a little more, the body disappears altogether.

In several positions, however, I can continue to see this body, even if the pressure has entirely ceased; but to succeed it is necessary to be very familiar with the method of examination by the aid of digital pressure, and especially is it necessary to make several attempts, going a little nearer to or a little farther from the patient, or changing one's position slightly. At the same time one must diminish the strength of the convex glass behind the ophthalmoscope as the body recedes, in order not to lose sight of the latter.

If, on the contrary, I press strongly, the body hanging down advances well forward, in such a way that between it and the peripheral external limit illuminated by the ophthalmoscope, there is a red gap one centimetre or more in width. We also see that at the same level, but a little downwards and inwards, there is at the side of this body another one like it, much smaller, which undergoes the same displacements during pressure on the ciliary region, and which forms, so to say, a kind of satellite of the other body. Such are the ophthalmoscopic findings of the case.

But in spite of all description one who does not see for himself this ophthalmoscopic picture will never have a clear idea of it; and, considering the great difficulty of seeing these bodies, a difficulty practically insurmountable by one who is not accustomed to examination of the ciliary region of the fundus by digital pressure, it would even be not impossible that a negative examination might lead him to doubt the existence of this ophthalmoscopic fact. For this reason I determined to show you the patient, and to point out to you how I go about the observation properly.

But what is the meaning of the ophthalmoscopic picture? My investigations allow me to reply quite categorically that the case is one of enormous excrescence of the ora serrata. The fact is that when one examines a certain number of individuals by the method of digital pressure it is not uncommon*

*To get an idea of the frequency of excrescences of the ora serrata in general, we may add that in the last 100 subjects examined ophthalmoscopically by the aid of digital pressure, we found 26 cases with excrescences of the ciliary region, of which 20 were short and 6 long.

to see that in one point, or even several, of the ora serrata there projects towards the interior of the eye, a regular kind of thread two to five millimetres long, ophthalmoscopically white or golden yellow, which usually possesses at its central end a round swelling of a regular character, reflecting the light more strongly than the thread from which it hangs. One can then make out a stalk or pedicle, thinner and less visible, and a head, which is usually the size of the head of a pin. Sometimes one sees only the shining head, the stalk being invisible on account of its delicacy and translucency. In other cases, on the contrary, the head is absent and the stalk is seen to terminate in a needle-like manner without the usual swelling.

These excrescences follow the movements of the ocular wall and are visible only when the ora serrata is projected strongly towards the interior of the eye. Rarely, they are situate more in front of or behind the ora serrata. Sometimes they are multiple. They are of common occurrence in persons with an error of refraction—myopia, hypermetropia, and even astigmatism; in aged persons, in whom the excrescences are most often golden-yellow in colour, and in syphilitic and in alcoholic individuals. But sometimes they occur in young people with normal eyes, in whom it is impossible to find any constitutional defect upon which the blame may be laid.

Besides the short excrescences, which cannot be seen in any way with the ophthalmoscope without depression of the ocular wall, there is a variety which is much less common, in which the excrescence is so long that a part of it can be seen even without pressure, provided one proceeds methodically.

I may be allowed, while on this subject, to recall to your attention a case which I presented to the *Société Impériale de Médecine*, 13th December, 1901.

The case was that of a man of 32 years, suffering from syphilitic choroido-retinitis; ophthalmoscopy with digital pressure on the ciliary region of the right eye revealed the existence of two gigantic excrescences, one at the supero-external, the other at the supero-internal region. They arose from the ora serrata and projected deeply into the vitreous. They were fixed, semi-translucent, and delicate. With the ophthalmoscope (upright image) they appeared the size of a No. 6 lacrymal probe. The extremity of the stalk of the supero-external excrescence was larger and a little curved at the end. The length of these excrescences was more than two centimetres (ophthalmoscopically enlarged). The surface was polished and without much irregularity.

On examination of the supero-external excrescence closely with +6 D. there was found to be a kind of powder of black

particles scattered here and there over the surface. The change of position of the excrescences occurred in an inverse direction relatively to the corneal displacements ; during these displacements they became more apparent. On account of their translucency and eccentricity, they easily escaped observation and showed up better by transmitted light. In this patient it was possible to follow the excrescences from the ora serrata to their extremity in the vitreous.

These excrescences were so easily seen in this case that several members of the *Société Impériale de Médecine* could easily see one of them by merely placing the eye by the side of my mirror while I illuminated the fundus and made the excrescence prominent by pressure. It appeared like a white thread in the vitreous, behind the lens. Relaxation of the pressure allowed the excrescence to recede so far ; but, even if one entirely ceased to press, careful following of the recoil enabled one to retain in view a part of the excrescence, which was thus visible with the ophthalmoscope alone, apart from any pressure. It would thus be possible to take it for an opacity of the lens, or a vitreous exudate ; or even not to recognise it at all, if one failed to examine with digital pressure, so as to follow the excrescence up to its origin in the ora serrata.

Since the publication of this case (*Gazette Médicale d'Orient*, 1902, No. 23), I have had the opportunity of examining fifteen additional cases with this kind of excrescence, of such length that one could see their termination even without digital pressure. The case shown at the last meeting is doubtless one of these.

What is the significance of these cases? All that can be said at present is that we have met with a large proportion among syphilitics. As to the short excrescences the proportion among syphilitics (acquired or hereditary) is much smaller. Out of fifteen cases with long excrescences five were syphilitic, two being hereditary. In two more cases hereditary syphilis was not excluded.

Besides syphilis we have found alcoholism in two cases ; in four other cases there was merely a refractive error ; in one other case spasm of accommodation. In all probability diathetic diseases, advanced age, and overaction of the ciliary muscle from error of refraction, contribute to their production.

(Here follows a detailed account of the sixteen cases.)

That is all that we know clinically about this question. As to the histological nature of the formation, we know nothing positive ; microscopic examinations have not been made, for up to now, so far as I am aware, these excrescences have not been diagnosed ophthalmoscopically, for the simple reason that examinations

are always made without digital pressure, and without pressure diagnosis is impossible. Everything remains yet to be done from the histological point of view. The only point which we might appeal to at present is that Kuhnt ("Ueber einige Altersveränderungen des menschlichen Auges." *Jahresbericht von Michel*, 1881, p. 30, und *Centralblatt von Hirschberg* 1882, p. 26) and Kerschbaumer ("Ueber Altersveränderungen der Uvea," *Archiv f. Oph.*, Bd. XXXIV, 4), have described in their microscopic researches under the name of *Excrescenzen Sprossenartig*, a form of excrescence of the ciliary region which projects into the vitreous, and which consists of a circumscribed proliferation of the cylindrical cells of the pars ciliaris retinae. Schoen ("Die Fonctionkr. der ora serrata und der Ciliartheiles der Netzhaut." *Archiv f. Augenheilkunde*, XXX, p. 128-178, f. 2 and 3) describes at length hyperplastic alterations of the cylindrical cells, which degenerate into an almost amorphous mass, especially between the hyaloid membrane and the fibres of the zonule. These masses consist of dead (necrotic) cells, mingled with a few living cells. They are attached to the ciliary surface by a thin pedicle, which is formed of living or dead cells. Schoen insists that these lesions are invisible during life, and considers them to be pathological products of excessive accommodative function, while Kuhnt and Kerschbaumer see in them only senile changes.

Up to what point could the ophthalmoscopic excrescences revealed by the aid of digital pressure be related to the anatomo-pathological excrescences discovered by the microscope? That will be known only when the chance occurs of microscopic examination of an eye in which, during life, the existence of an excrescence was determined by the ophthalmoscope.

Yet clinical researches have already informed us that they are not mere senile alterations, since we find them commonly enough among young people; nor yet always due to accommodative overwork, since we have often come across them in people who do not strain their accommodation. They represent, rather, an alteration common to several pathological processes, such as syphilis, alcoholism, overwork of the eye, and senility.

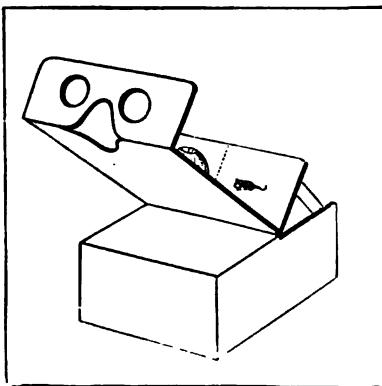
In conclusion, I hope that you will excuse the length of this communication, due to the fact that this ophthalmoscopic lesion has not yet been described, so far at least as I am aware, although it is of such frequent occurrence, and such a beautiful one to observe. This fact shows again how much ophthalmoscopic examination by the digital procedure has enlarged the field of observations of the fundus oculi, since, thanks to that method, we are necessarily able to see things which hitherto

have passed entirely unnoticed. Still another conclusion emerges from the recording of these excrescences, *viz.*, that the ciliary region is a field of observation which is still unexhausted, and that systematic investigation of this region, which is to be looked upon, from the nutritional standpoint, as the heart of the eye, promises to bring to light many interesting points.

NOVELTIES.

A NEW STEREOSCOPE.

Messrs. C. W. Dixey & Son, of 3, New Bond Street and 20, Welbeck Street, have produced an inexpensive stereoscope for eye exercise, which is intended to be used with Kroll's stereoscopic pictures. The instrument is simple in construction, but seems well adapted to its purpose. It folds back in its case, so as to form its own support, thus avoiding the necessity of holding it in the hand ; and the one necessary adjustment is provided for, *viz.*, the alteration of the width and part of the stereoscopic lenses to correspond with the interpupillary width of the user. There is no focussing adjustment, and, perhaps on the



whole, this is well, as a focussing adjustment is liable to misuse in unskilled hands. As it is, the focus is adapted to normal sight, and the patient must wear his distance correction in using the instrument. Kroll's pictures are well known ; should others be desired, ordinary stereoscopic slides may be used with the instrument. To ensure the use of both eyes the pictures should be marked, that for one eye with a red vertical line, and that for the other eye with a horizontal line. The patient should see these lines as a cross, and in this way the difference of the sight of either eye may be detected. The cost of the stereoscope, with the pictures, is 10s. 6d.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I. DISEASES AND INJURIES OF THE ORBIT AND SINUSES.

- (1A) Knapp, Arnold.—Chronic empyema of the ethmoidal and frontal sinuses, with exophthalmos ; operation ; death from meningitis ; autopsy. *Archives of Ophthalmology*, May, 1903.
- (1) Hotz, F. C.—A case of syphilitic orbital periostitis and optic neuritis, in which vision was almost extinguished but completely restored. *Ophthalmic Record*, July, 1903.
- (2) Truc, H.—A case of tumour of the orbit with unilateral exophthalmos and pseudo-symptoms of Basedow's disease. (Un cas de tumeur de l'orbite avec exophthalmie unilatérale et pseudo-symptômes de Basedow.) *La Clinique ophthalmologique*, 25 juillet, 1903.
- (3) Damianos, N.—Thrombo-phlebitis of the cavernous sinus from caries of the teeth. *Wiener klin. Woch.*, 1903, and *American Medicine*, August 15, 1903. Nr. 13, p. 377.
- (4) Parsons, J. Herbert.—A case of orbital wound in which the optic nerve and central vessels were divided. *Royal London Ophthalmic Hospital Reports*, vol. 15, part 4, October, 1903.
- (5) Frugueile, G.—Plexiform neuro-fibroma of the orbito-temporal region. (Sul neuro-fibroma plessiforme orbito-temporo-palpebrale.) *Annali di Ottalmologia*, Vol. XXXIII, Fasc. 1-2, p. 57.
- (6) Fridenberg, Percy.—Orbital osteoma of ethmoidal origin,—perforation of the orbital roof and exposure of frontal lobe—operation—recovery. *Trans. American Ophthal. Society*, Vol. X (1903), p. 83.
- (7) Petit, Paul.—Spontaneous relapsing hæmotomata of the Orbit. (Hématomes spontanés récidivants de l'orbite.) *Annales d'oculistique*, T. CXXX (1903), I., p. 112.
- (8) Carollo, F.—A contribution to the study of orbital pseudo-neoplasms. (Contributo alla casuistica dei pseudo-plasmi dell'orbita.) *Archivo di Ottalmologia*, January-February, 1904.

- (9) Birch-Hirschfeld, A.—Contribution to the study of orbital osteomata. (*Beitrag zur Kenntnis des Osteoms der Orbita.*) *Klin. Monatsbl. f. Augenheilkunde*, Sonder-Abdruck zum XLII Jahrgang, 1904.
- (10) Axenfeld.—Osteoma latens and mucocele of the sinus frontalis with absence of rhinoscopic symptoms in the frontal sinus. (*Latentes Osteom und mucocele des Sinus frontalis mit negativem rhinoskopischen Befund in der Stirnhoehle.*) *Klin. Monatsbl. f. Augen.*, März, 1904, p. 229.
- (11) Truc, H.—A case of tumour of the Orbit with one-sided exophthalmos and Basedow's pseudo-symptoms. (*Ein Fall von Tumor der Orbita mit einseitigem Exophthalmus und Basedow'schen Pseudosymptomen.*) *Die Ophthalmologische Klinik*, 20 März, 1904.
- (12) Mertins, S.—Empyema of frontal sinus, followed by extradural abscess and abscess of frontal lobe; operation and death from hypostatic congestion of the lungs. *American Journal of the Medical Sciences*, April, 1904.

(IA) A female, 34 years of age, had been twice operated on for "a swelling near the nose, pushing the eye out." When seen by Arnold Knapp, there was a painless swelling occupying the upper and inner wall of one orbit. The eyeball was pushed downwards and outwards. The outer wall of the middle meatus of the nose was bulged inward. At the operation, a quantity of thick fluid was evacuated from the dilated frontal and ethmoidal sinuses. An opening was made into the nose, the middle turbinated bone was removed, and the nasal process of the superior maxilla was partly resected. Death on the fifth day after operation. The autopsy revealed an extensive purulent meningitis.

(2 and 11) After premising that in Basedow's disease the exophthalmos is bilateral, Truc states that a small number of authors throw some doubt upon such bilaterality as an absolutely diagnostic sign. He then relates a case in which the diagnosis between a deeply-seated orbital tumour and Basedow's disease with unilateral exophthalmos was particularly difficult, because most of the signs of the latter disease were present, except those of Stellwag and Graefe. Being unable to come to a positive diagnosis, and after a trial of quinine, antipyrin, bromidia, and salicylate of soda, Truc contented himself with an operation on the lids to protect the globe, and sent the patient home to be kept under observation. Five months later, when the patient returned, a hard mass could be felt

in the orbit, the globe was deviated, and sight almost lost ; the symptoms of Basedow's disease persisting all the time. Exenteration of the orbit did not modify the latter symptoms, either immediately or later. The tumour turned out to be an epithelioma or endothelioma the size of a small hen's egg. It had eroded the inner and upper orbital walls. Death followed three months after operation.

W. ERNEST THOMSON.

(3) **Nikolanus Damianus** calls attention to the fact that while caries of the teeth frequently leads to periostitis of the jaw-bone, in rare instances infection of the dura and thrombo-phlebitis may follow. He cites the case of a woman of 25 years, who, two days previous to her applying to the hospital, had had three lower carious teeth removed. Upon examination, periostitis of the left lower jaw was found. She developed fever, and in ten days the cheek, jaw, and cervical region on the left side were swollen, the skin red, and fluctuation was present. After opening an abscess on the lingual aspect of the jaw, the patient improved and in two days the temperature was normal. In three days the temperature again rose, the patient became soporose, the right eye protruded, the lid was swollen, the conjunctiva cyanosed, and the right eyelid drooped. The right eye followed the movements of the left imperfectly. The pupils responded normally. The eye-grounds showed no abnormality. There was no pathologic condition in the left eye. The patient died in two days. A thrombo-phlebitis of both cavernous sinuses and a basilar meningitis were found. The origin of this condition Damianos believes was either in the abscess in the soft parts of the lower jaw, or in the abscess situated in the region of the palatal arch, extending by means of the veins on the side of the pharynx, namely, the pharyngeal and pterygoid plexuses. He cites a second case in a woman of 30 years, with similar symptoms, who presented post-mortem thrombosis of the facial vein, which had extended to the left orbital vein. There was a retro-bulbar abscess which had involved the cavernous, superficial, petrous, and sigmoid sinuses, and the right jugular vein. Pachymeningitis was also present. He quotes other cases illustrating the various ways by which this condition may develop. The local symptoms are the result of the closure of the sinus receiving the blood from the ophthalmic vein, and the pressure upon the nerves surrounding the cavernous sinus. Damianos advises draining the sinus, using the method employed by von Vosz to operate upon the Gasserian ganglion. He calls especial attention to the fact that carious teeth are not only a possible source of slight disturbances of health,

but also of grave diseases involving the blood channels and the brain. His cases are a warning against the possibilities of infection of the wounds after the extraction of teeth.

(4) The patient was a man, aged 28 years, who was stabbed in the right eye with a table-knife. When seen the same night, the eye was of stony hardness and quite blind. The wound was below and the movements of the globe were present, except that the external rectus was paralysed. The pupil was dilated and did not react. Ophthalmoscopically, a large area of œdema was found over the posterior pole of the eye. The disc was pink and its edges were indistinct. The vessels were of normal size and the arteries resembled the veins in colour; by pressure on the globe, the blood could be driven out of the vessels, thus showing there was little or no circulation going on. A dense white area extended downwards from near the outer side of the disc, the edges were sharply defined, and the surface was raised about 2 D. The tension at this time (one week after the injury) was normal. Three weeks later the cornea became ulcerated, but this soon healed. The disc became completely atrophic, and there was much degeneration and increase of fibrous tissue in the retina.

Abstracts of all the recorded cases of a similar nature are given, and in discussing the pathology of the condition met with, Parsons accounts for the œdema of the posterior pole of the eye by the fact that the parts being rendered anæmic they very quickly absorbed fluid from the surrounding parts. The retina over the macular region was probably detached, and this may account for the absence of the cherry-red spot, although other things may have caused this. The causes of this condition are then discussed. As soon as the cut ends of the central vessels are closed, the vessels will commence to refill through the direct and indirect cilio-retinal anastomoses near the disc. These are venous rather than arterial, and so the veins fill up first. As soon as this happens, new capillaries will form in these white areas. The blood cannot escape from the central vein, as that is obliterated, so that its only way is by a very circuitous route through the venæ vorticosæ. This offers great resistance and venous hyperæmia and haemorrhages are the result. The retina is eventually transformed into fibrous tissue, in which pigment areas mark the sites of former haemorrhages. Some final remarks are then made as to the probable extent of the damage in this particular case, and an ophthalmoscopic drawing of the condition of the fundus is added.

C. D. M.

(5) Frugueile's conclusions with regard to neuro-fibromata are

as follows : (1) The plexiform neuroma of Verneuil, on account of its structure, should rather be called, after Billroth, plexiform neuro-fibroma ; (2) Plexiform neuro-fibroma and elephantiasis neuromatodes have the same anatomical basis, although they represent two different forms of degrees of the lesion, and should, from a clinical standpoint, be differentiated ; (3) The two lesions may be met with in the temporo-palpebral region, but under different characters ; (4) Bearing in mind the researches of v. Recklinghausen upon cutaneous fibromata, and the relative frequency with which these different lesions are met with in the same subject, a separate group of neoplasms, the "neuro-fibromatoses" might be established. The communication concludes with a bibliography, containing references to twenty-seven published cases.

A. ANTONELLI.

(6) Some four months after an injury, Fridenberg's patient, a man aged 21 years, noticed a fulness of the upper lid and a swelling over the inner angle of the right eye. When examined a year after the accident, the eye was protruded downwards and outwards, and a smooth, hard lump could be felt between the inner canthus and the edge of the orbit. As the symptoms became worse, an operation was soon afterwards decided on. An osseous tumour, the size of a large horse-chestnut, growing from the os planum of the ethmoid bone, was removed by Jansen's method. On exploring the roof of the orbit, an aperture was found, about the size of a 5-cent. piece, in which the brain presented. The dura had been destroyed over this area. The patient made a good recovery.

(7) Petit reports two cases of spontaneous relapsing haemorrhage into the orbit. *Case No. 1.*—A man, aged 36 years, suddenly found that one eye had become prominent, without any disturbance of sight. Upon examination, axial exophthalmos not reducible by pressure, outward movement of eyeball restricted, pupil active, whitish exudation into fundus, near optic disc, measuring 2 P.D. by I.P.D. Two days later, exophthalmos less, but a large ecchymosis was present at the inner part of the upper arch of the orbit. Albumen in urine. Five days afterwards, exophthalmos scarcely perceptible ; vision normal ; periarterial exudation in fundus reduced to one-half its original dimensions. Forty-five days after attack began, there was no exophthalmos or ecchymosis, vision was normal, and the retinal exudation was replaced by a whitish-grey patch of atrophy. There had been two similar attacks, each of brief duration, of bleeding into the orbit. *Case No. 2.*—A woman, aged 63 years, developed pain in her orbit, followed within two days by protrusion of one eye. When examined on the following day, there was

exophthalmos, chemosis, oedema of eyelids, and restricted movements of the eyeball ; no changes in fundi. Patient, who was subject to rheumatism, suffered from a cardiac lesion, and albumen was present in the urine. Five days after the beginning of the illness, ecchymosis of the upper lid and of the conjunctiva made its appearance, and a diagnosis of orbital haemorrhage was then come to. Retinal veins fuller than on other side. Blood was obtained from the affected orbit by puncture. After a relapse of the bleeding, patient was finally cured some six months after the beginning of her illness.

Commenting upon the above cases and upon those found in literature, Petit points out that retinal changes in association with bleeding into the orbit are unfavourable as regards prognosis. In most of the reported cases, which are by no means numerous, a vascular affection, with renal lesions or haemophilia, has been present.

S. S.

(8) After reviewing the more recent contributions, Carollo describes a case from the Palermo *clinique* where mercurial treatment cured the exophthalmos, ocular deviation, and the other symptoms which had led to the diagnosis of an orbital tumour. Syphilis was denied. A. ANTONELLI.

(9) A. S., 26 years, married woman, came in July, 1903, to Birch-Hirschfeld's clinic, complaining of pains in left eye and forehead. There was no history of injury and no hereditary taint. Present illness began four years ago with protrusion of left eye and diplopia. Occasional headaches at first, which later developed into a constant boring pain. Latterly, the diplopia had disappeared, owing to drooping of the upper eyelid. Examination showed a distinct dislocation of the left eye, downwards, outwards, and forwards, owing to the pressure of a tumour of bone-like consistency, which could be easily felt along the inner third of the upper orbital margin. Edges easily defined, except towards interior of orbit. The surface was knotty : it was firmly fixed, and of unyielding consistency. The overlying skin was normal. The movements of the eye were fairly good in an upward direction, restricted inwards, free outwards and downwards. The position of the double images was in accord with the dislocation of the bulb. Eyeball, disc, and vessels fairly normal, as is generally the case. There was myopic astigmatism of 3 dioptries. Tear duct and bony framework of upper face apparently normal.

These facts left no doubt as to the existence of a bony tumour in the upper and inner corner of the orbit. The long history, etc., excluded the probability of a malignant growth. The difficulty consisted in diagnosing between an exostosis of the orbit,

and an osteoma of a neighbouring cavity (frontal sinus). In this case there was not (as sometimes happens) any protrusion of the forehead, a fistula, or polypi hanging down into the nose, to aid in the diagnosis. With regard to operation, it is most important to form a correct conclusion, for were the tumour merely an exostosis, it could be easily separated from its orbital base with hammer and chisel. But if it were an osteoma of the sinus, it seemed doubtful (judging from similar cases recorded) whether it would be possible to remove it, starting from its orbital process. Röntgen rays were employed to clear up the difficulty. A profile radiogram showed that the main growth was situated in the frontal sinus, which was much distended. The tumour did not entirely block up the sinus, there being a small anterior cleft, an important point in case of operation. A second radiogram, at right angles to the former one, showed that the tumour had spread to the right sinus. This fact was important in determining the size of the skin flap. *Operations.*—Skin incision reached from root of nose to junction of the middle with outer third of orbital margin. From here a vertical incision was carried nearly up to the margin of the scalp. The underlying bone was chiselled through, and a skin-bone flap raised with the elevator. The anterior face of the tumour was then exposed; it presented an irregular, knobbed appearance, and was covered with a grey-red, glairy mucus. The tumour was then drawn *in toto* out of its sinus. In so doing, a little pedicle, lying between the frontal and ethmoid bones, was broken through. The sinus was scraped and packed, and syringed daily with boric acid lotion until discharge stopped. Patient went home in three weeks. Later, for cosmetic reasons, the scar was raised and paraffin injected. Five months later the following results were notified: complete disappearance of exophthalmos and almost complete disappearance of displacement and retraction. Mobility of eye unimpaired. Palpebral fissures equal. Binocular vision unimpaired. Headaches cured.

The osteoma resembled both in shape and configuration, half a walnut kernel; weight 25 grm.; measurement 3·5 cm. by 5·5 cm. Fore part flatter than back. The tumour was partly of ivory-like consistency, partly like pumice stone. There are three kinds of osteomata, namely, ivory bone, compact bone, and spongy bone. These three varieties may co-exist. As the larger part of the tumour in question was contained in the sinus, it was well that the growth had not been attacked *via* its orbital process, for the initial incision would have required enlargement and the dura might have been

exposed. Since the danger of the operation lies in the risk of meningitis and encephalitis, radiograms are much to be recommended as a means of saving time and of determining the exact form of the operation. However, in spite of the risks, Hirschberg agrees with Bernhaugel in condemning Berlin's advice to leave orbital osteomata alone, or to remove the affected eye in preference. But operation is *not* justifiable when the upper wall of the orbit is involved, and in some special cases, as when the growth has broken through the posterior wall of a sinus.

As to the origin of osteomata, trauma and lues account for some. An embryological origin has been suggested, also some error of development of the air-sinuses at puberty. Cloquet thinks they are ossified polypi. The upper orbital margin is their most common situation.

ANNIE T. BARNARD.

(10) **Axenfeld** reports an interesting case which was very similar to that published by Birch-Hirschfeld. In the present case, however, the osteoma was covered towards the orbit by a mucocele, and the nasal region of the frontal sinus was normal. The tumour was removed by resection of the anterior wall of the frontal bone. Axenfeld remarks that a radiograph would in this case have rendered an exact diagnosis possible.

A. BIRSCH-HIRSCHFELD.

(12) A man, aged about 46 years, had suffered from violent headaches for six months or so, and a few days before coming under notice, had developed a white, fluctuating, tender swelling, the size of a goose egg, in the region of the glabella. Two years before he had been rendered unconscious for several days by a blow from a hammer on the top of his head. The abscess was evacuated, with temporary relief to pain. Five days after operation, however, the patient vomited and was convulsed. On the next day **Mertins** trephined, and found an extra-dural abscess, which contained about one ounce of pus. The dura was adherent to the frontal bone, and formed as it were, the bed of the abscess. A needle introduced into the right frontal lobe gave exit to a few drops of pus. Nine days after the operation, a transient paresis of the right internal rectus was noted, along with optic neuritis on the right side. On the following day the abscess in the right frontal lobe was thoroughly opened, and about one and one-half ounces of creamy pus and brain tissue were evacuated. Moreover, the cavity was gently curetted, and drained with iodoform gauze. But the patient died from congestion of the lungs 21 days after the first and 9 days after the second operation. At the autopsy, a depressed fracture of the left

parietal bone, the result of the blow received two years previously, was found. The dura was adherent around the trephine opening, both to the bone and to the brain. An abscess, with thick lining membrane, was present in the right frontal lobe. The posterior wall of the left frontal sinus was necrosed, and a fistulous tract was found leading from the sinus to the extra-dural abscess. The abscess, therefore, was the direct result of the empyema of the frontal sinus.

II.—LOCALISATION OF FOREIGN BODIES IN THE EYE, &c.

- (1) Noyou, J.—More than one foreign body in the interior of the eye. (*Meer dan een corpus alienum in het enwendige van den oogbal.*) *Ned. Tijdschrift v. Geneeskunde*, 1904, II, No 12.
 - (2) Weeks, John E.—On the various methods employed for localising foreign bodies in the eye by means of the Roentgen rays. *Ophthalmic Record*, June, 1905.
 - (3) Sweet, William M.—Magnetic properties of steel alloyed with other metals. *Ophthalmic Record*, June, 1905.
 - (4) Menacho.—A new method of stereoscopic radiography. (*Nuevo procedimiento de radiografia estereoscopica.*) *Arch. de Oftal. Hisp.-Amer.*, Octubre, 1905.
 - (5) Weeks. —The various methods of localising the position of foreign bodies in the eye by means of the Roentgen rays. (*Acerea de los diversos metodos empleados para localizar los cuerpos extraños en el ojo, por medio de los rayos Roentgen.*) *Anales de Oftalmologia*, Noviembre, 1905.
 - (6) Holth.—A method of localising foreign bodies in the eye and the orbit by means of radiography. (*Procédé de localisation radiographique des corps étrangers de l'œil et de l'orbite.*) *Ann. d'oculistique*, T. CXXXIV, p. 401, décembre, 1905.
- (1) Noyou relates a case of two foreign bodies in the eye. His patient had been occupied in scraping the inner wall of a boiler, and a small particle of iron perforated the eye. Enucleation was necessary, and the section of the eye showed a piece of kettle stone, which had been attached to the fragment of iron, and which, of course, no method of examination could have detected *in situ*.
- G. F. ROCHAT.

(2) **Weeks** furnishes us with an excellent description of the principal methods used. In brief, he says that "the great value of the X-rays as a means of localising foreign bodies in the eye is now, I think, conceded by all ophthalmologists."

"We have in the ophthalmoscope, the microscope, and in the magnet means which, under certain conditions, enable the operator to locate foreign bodies in the eye and orbit, but their uses are limited."

"The ophthalmoscope," he states, "may be employed to determine the presence of foreign bodies in the interior of the eye that are visible. These do not comprise more than ten per cent. of the cases. The ophthalmoscope is the most valuable means when the foreign body can be seen, as the location is accurate and positive and applies to foreign bodies of whatever character."

"The sideroscope, if properly constructed and properly mounted (he believes), is of value in indicating the presence of a magnetic body in the eye or its vicinity. However, when it is used, care must be taken to exclude any other magnetic body from the 'field' of the needle of the sideroscope, otherwise the results are unreliable. The impossibility of determining the location of the magnetic body within one to three centimetres, and the fact that the method is applicable to magnetic bodies only, detracts greatly from the value of the sideroscope as a means of locating foreign bodies in the eye."

"The only magnets that are of much diagnostic importance," he asserts, "are the powerful magnets—those that are usually termed 'giant magnets.' The diagnosis of a magnetic body in the eyeball, or in the tissues in the anterior portion of the orbit, or in the lids, can be made with the giant magnet ordinarily, provided the magnetic body is of suitable size, but if the magnetic body is very minute, or is lodged in the posterior segment of the globe, or if it is bound down by adhesions, or is deeply situated in the tissues of the orbit, the magnet often fails as a means of diagnosis. It is, of course, of no value in determining the presence of non-magnetic foreign bodies."

"In addition to the limited application of the giant magnet, there is more or less danger attending the diagnosis of magnetic foreign bodies in the eye by the use of this instrument, because of injury that may be inflicted by the application of too much force in a direction not the most favourable for the removal of the foreign body. Traumatism to retina, ciliary body, lens, and iris may result, which might be avoided if the operator was aware of the exact location of the foreign body."

"The X-rays are harmless as at present used for locating foreign bodies in the eye and orbit, so far as the patient is

concerned, and they are applicable to all foreign bodies that are opaque to the rays. The principal substances are all the metals (with one exception), the degree of opacity varying with the density of the metal and glass. The X-rays are of no value in locating splinters of wood."

"The requirements for obtaining a good skiagram in the procedure for the localising of foreign bodies in the eye are:—
1. The means for developing a suitable supply of X-rays. 2. A suitable source of the X-rays. 3. A head-rest that will ensure immobility of the head as far as possible during the period from the beginning of the first to the end of the second exposure. 4. A plate-holder which will permit the plate to be inserted and removed readily, will hold it firmly in proper relation to the head, and possesses the proper registration device. The apparatus should include the plate-holder in the head rest. 5. A suitable tube-holder; and 6. The proper relation of the patient's head and eyeball to the plate."

Having given these factors in detail, he deals with the advantages of the various methods of interpretation of the skiagraphic findings.

C. A. O.

(3) Considerable attention, *Sweet* says, has been given in recent years to the changes in the physical properties of steel which follow the addition of other metals, and the results of investigations conclusively prove the value of these metals in increasing the tensile strength, wearing qualities, and ductility of the alloyed steel. These so-called steel-hardening metals include nickel, chromium, manganese, and the rarer metals tungsten, molybdenum, and others of the same group.

Apart from the commercial value of a determination of the physical properties which these metals impart to steel, the subject of the magnetic properties of alloyed steel is of considerable importance to the ophthalmic surgeon. The same is true in view of the possibility of ocular injury from splinters, as these newer steels become more extensively used in the construction of tools and machinery and compose the raw material which must be manipulated into finished products by the workmen. It is possible, however, that since these steels possess tensile strength and ductility greater than that which is found in the ordinary grades of steel, the liability of these metals to break and chip will be less, and consequently there will be fewer instances of injury to the eyes from flying particles.

For the purpose of determining to what extent the addition of the steel hardening metals affect the magnetic properties of the alloyed steels, as shown by tests with the medium-sized magnet operated with the street lighting circuit, the author secured samples of the various steels from a number of the leading steel

manufacturers. These samples were found to vary within wide limits in the percentage of the alloy contained in each, in the carbon and other constituents, and in the treatment the metal had received during the process of manufacture; whether forged, cast, annealed, or hardened, while several of the samples contained more than one of the steel-hardening metals.

Investigations with nickel-steel, manganese-steel, chromium-steel, and tungsten-steel by the author, showed that with the exception of manganese-steel, the magnetic induction of steel is only slightly affected by the addition of the steel-hardening metals. He says, however, that in the higher percentage of nickel steel some difficulty would be experienced in the removal of a splinter of this metal from the eye, particularly if the body were covered with exudation.

C. A. O.

(4) **Menacho** employs a method modified from that of Mackenzie Davidson, by placing a blepharostat of the ordinary pattern in the eye before taking the radiograph. Sometimes he prefers to hold the eye with a pair of double fixation forceps. These external objects act as points to which the observer may compare the position of the foreign body when the pictures are seen in the stereoscope, and therefore give a ready means of estimating the exact relations. (Mackenzie Davidson always made use of metallic objects as points of comparison, but these were usually fixed outside the lid.) The paper is accompanied by several examples in which the foreign body is easily seen and localised.

HAROLD GRIMSDALE.

(5) **Weeks** thinks the methods least liable to error are those of Sweet (*vide THE OPHTHALMOSCOPE*, January, 1906) and of Mackenzie Davidson.

HAROLD GRIMSDALE.

(6) In localising foreign bodies in the eyeball or orbit by means of X-rays, **Holth** uses as guides two lead buttons, 2 mm. in diameter, which he fixes by fine sutures to the bulbar conjunctiva, touching one the highest and the other the lowest point of the cornea. The patient being seated, his head is immobilised by getting him to bite a spatula, which can be fixed in a suitable position, and two pictures are taken, one through the temples and the other in an occipito-frontal direction, the tube being kept at the same height in each and the patient being directed to fix some suitable object or light with his uninjured eye.

The position of the foreign body is ascertained by direct measurement on the plates, allowance being made for the fact that owing to their position with regard to the tube and the eye the measurements on them exceed the real ones by one-tenth.

To facilitate localisation Holth uses a metallic sphere, 24 mm. in diameter, with a cornea, an iris, and a representation of the two

guides drawn upon it, and a number of rings of such sizes that when placed on the sphere each of them is separated from the one next to it on either side by an interval of 1 mm. By marking the dimensions found by means of the plates on the appropriate ring and placing it in position on the sphere, a graphic idea can be obtained of the position of the foreign body in the eye.

Holth states that his method of localisation is so accurate that he has twice been able to cut down on pieces of copper in the eyeball and remove them by means of forceps, and he gives illustrations of the instruments he has had made for use in such cases.

R. J. C.

III.—MAGNETS AND MAGNET OPERATIONS UPON THE EYE.

- (1) W. Koster, Gzn.—Some difficulties in removing foreign bodies from the interior of the eye-ball. (*Eenige moeielijkheden bij de verwijdering van corpora aliena uit het inwendige van den oogbal.*) *Ned. Tijdschrift v. Geneeskunde*, 1904, II, No. 9.
- (2) Hirschberg, J.—A large iron splinter removed with the small magnet. (*Ein grosser Eisensplitter, mit kleinem Magneten gefördert.*) *Centralbl. für prak. Augenheilkunde*, Februar, 1905.
- (3) Menacho.—Foreign bodies retained within the eye. (*Cuerpos extraños intraoculares.*) *Archivos de Oftalmología*, Junio, Julio, y Agosto, 1905.
- (4) Hirschberg, J.—Magnet operations on children. (*Die Magnet-operation bei Kindern.*) *Centralbl. f. prak. Augenheilk.*, September, 1905.
- (5) Percival, A. S.—Removal of iron from interior of the eye by electro-magnet. *British Medical Journal*, 4th November, 1905.
- (6) Jurnitschek, F.—A magnet with the pole in the centre of the magnetic field. (*Der Innenpol-Magnet.*) *Zeitschr. f. Augenh.*, November, 1905.
- (7) Basso.—Extraction of particles of iron from the interior of the eye by means of an electro-magnet. (*Sull'estrazione delle schegge di ferro dall'interno dell'occhio coll'elettromagnete.*) *La Clinica Oculistica*, January, 1906.

(8) **Bufill.**—**Extraction of a fragment of iron from the eye by the electro-magnet.** (*Caso clinico de cuerpo extran (ferrico) intraocular extraido con el electro-imán*). *Arch. de Oftal. Hisp.-American.*, Febrero, 1906.

(1) **Koster** describes his method for the detection of iron and steel in the eye. In the first place a sensitive sideroscope is necessary. The instrument devised by Hirschberg (made by Dörrsel in Berlin) is used by Koster, but with a modification which makes it more sensitive. The oil lamp is replaced by a strong electric light. On the mirror, attached to the suspended magnet, falls the shadow of a thread placed before the light. This shadow is projected by the mirror on a scale at six metres distance. Very slight movements of the suspended magnet can thus be observed; the author could detect a particle of iron in the iris not bigger than a dot on the letter "i" in small print.

The article gives details of a great number of cases of foreign bodies in the eye, and their treatment with either the Hirschberg or the Haab magnet.

J. F. ROCHAT.

(2) **Hirschberg** reports the case of a man who three days previously received a perforating wound of his left eye. On admission, the eye was inflamed, tension *minus*, and there was hypopyon. In the midst of a large retinal haemorrhage could be seen the point of a foreign body. The hand-magnet was applied and the piece of steel moved through the iris, so that its point projected into the anterior chamber, but it could not be moved further. The corneal margin was incised, and a fine point of the hand-magnet inserted, when a piece of iron, 13 mm. long, $2\frac{1}{2}$ mm. wide, and weighing 52 mg., was removed. The eye improved, and on discharge had useful vision.

A. LEVY.

(3) In this long article **Menacho** deals with the symptoms, diagnosis, prognosis, and treatment of wounds of the eye with a retained foreign body. The paper is based on 321 cases, of which 46 are from Menacho's own clinic; as a result of their examination, he comes to the following conclusions:

The cases may be divided into three groups; the division cannot be an absolute one, because each case is unique in some respect.

I. *Recent Wounds.*—(a) When the injury is very severe, and the foreign body of large size remains in the eye, so that vision is definitely lost and there is reason to fear that the stump will not tolerate an artificial eye, enucleation should be performed at once. (b) When the projectile has not destroyed the eye. (a) If it is magnetic, it may be extracted by the electro-magnet from the anterior segment; if it lies in the posterior segment of the eye, the question of its removal will depend on the position. (b) When the foreign body is not

magnetic, it may be extracted by an operation, if it lies in the anterior segment. If, on the other hand, it lies in the posterior segment, the chief point is the possibility or impossibility of accurate localization. When the surgeon is able to localize the position, he may attempt to extract any body that is accessible; if it lies very deeply, the operation will certainly mean the loss of the eye. Hence, in these cases Menacho advises the surgeon to wait until it be seen whether the eye will tolerate the intruder or not, but to be prepared to enucleate if the eye shows signs of intolerance. When the position of the foreign body cannot be estimated, he advises non-intervention so long as the eye remains quiet.

(2) *Wounds already Healed.*—(a) If the body is magnetic, it should be removed by the electro-magnet, if it be easily accessible. If the depth at which it lies renders it difficult of attack, or if it be encapsuled, no immediate operation should be undertaken. If it be in the lens, it should be extracted, unless the opacity has become stationary. (b) If the intruder be copper, it must be extracted at all cost. (c) Apart from these cases, the foreign body should be extracted when it is in the anterior segment, but if it lies deeply, expectant treatment is better.

(3) When toleration has been established, by which Menacho means that the foreign body has remained several months within the eye without setting up reaction, he advises non-intervention if the patient is an educated man, and is within the reach of skilled aid, but if, on the other hand, the patient is in such a position as to make him unable to seek a surgeon's skill at once on an emergency, it is better to remove the eye.

The only operation to safeguard against sympathetic ophthalmia is enucleation. HAROLD GRIMSDALE.

(4) **Hirschberg** recounts five cases of metallic foreign bodies occurring in children, and again emphasises the necessity of prompt operation, using a general anaesthetic if necessary. All his cases were successful except one, when the child was brought to him a year after the accident with vision already destroyed, but even in this case the metallic body was extracted.

A. LEVY.

(6) **Jurnitschek** describes the present-day magnets used in ophthalmic practice, and discusses the methods of obviating the great loss of power which takes place in the magnets as now constructed. He has constructed a magnet of great power upon novel lines, which should mark a great advance upon present methods. The magnet consists of a solenoid wound coil bent in the form of an oval, so as to surround the patient's head. The magnetic field is most intense in the centre of the

axis of this oval, and, therefore, the metallic body in the eye is strongly magnetized. As a pole for the magnet, soft iron rods of various thicknesses are used, which are simply held in the hand and approached to the eye. They are thus brought within the magnetic field of the solenoid, become strongly magnetized, and exert traction upon the body in the eye.*

A. LEVY.

(7) **Basso** prefers a small giant magnet, which avoids the introduction of the point into the injured eye, but is not so unmanageable in size as Haab's model. He thinks highly of Asmus's sideroscope as a means of preliminary diagnosis, and extracts, either through the original wound or through a second made by the surgeon at the most appropriate place, as seems best in each individual case. In 19 cases Basso has had 14 successes; in four, extraction was not possible; and in one, infection of the eye occurred, and was followed by total loss. In one case where extraction was impossible, although the sideroscope gave positive indications of the presence of a foreign body, vision remained $2/3$ until the patient was lost sight of, six months after the extraction. The splinter was invisible, being no doubt fixed firmly in the sclerotic. HAROLD GRIMSDALE.

(8) **Bufill** recounts a successful case observed in Hirschberg's clinic.

HAROLD GRIMSDALE.

IV.—CONGENITAL CONDITIONS.

- (1) **Stevenson, Edgar.**—Congenital glaucoma. *Liverpool Medical and Chirurgical Journal*, January, 1904.
- (2) **Grossmann, Carl.**—Congenital cyst with microphthalmos. *Liverpool Medical and Chirurgical Journal*, January, 1904.
- (3) **Galezowski, J.**—Double coloboma of both irides. (Colobome double des deux iris.) *Recueil d'Ophthalmologie*, juin, 1904.
- (4) **Nicolai.**—Aniridia congenitalis totalis. *Ned. Tijdschrift v. Geneeskunde*, 1904, II, p. 722.

*This ingenious appliance was exhibited at the Tenth International Congress of Ophthalmology, and was described and figured in THE OPHTHALMOSCOPE for December, 1904.—EDITORS.

- (5) Kipp, Charles J.—An uncommon congenital anomaly in the vitreous chamber and the inner membranes of both eyes. *Trans. Amer. Oph. Society*, Vol. X, Pt. II (1904), p. 279.
- (6) Elliott, Major R. H., I.M.S.—A case of cryptophthalmos and partial ablepharia. *Indian Medical Gazette*, December, 1904.
- (7) Gilbert, W.—Two cases of rare congenital anomalies of the iris. (Zwei Fälle seltener congenitaler Irisanomalien.) *Zeitschrift für Augenheilkunde*, Februar, 1905.
- (8) Duane, Alexander.—Congenital deficiency of abduction, associated with impairment of abduction, retraction movements, contraction of the palpebral fissure, and oblique movements of the eye. *Archives of Ophthalmology*, March, 1905.
- (9) Kipp, Charles J.—Two cases of anomalies of the vascular system of the optic papilla. *Archives of Ophthalmology*, May, 1906.
- (10) Ash, F.—Two cases of coloboma of the optic nerve. (Zwei Fälle von Coloboma nervi optici.) *Zeitschrift für Augenheilkunde*, Mai, 1905.
- (11) Fortunati.—Tonic congenital spasm of the levator palpebrae superioris. (Spasmo tonico congenito dell'elevatore della palpebra superiore.) *Rivista Italiana di Ottalmologia*, July-August, 1905.
- (12) Stirling, J. W.—Microphthalmos, persistent pupillary membrane, anterior synechia and central congenital opacity of the cornea. *Ophthalmology*, July, 1905.
- (13) Grossmann, Karl.—Congenital absence of the dilatator of the pupil. *British Medical Journal*, August 26th, 1905.
- (13A) Fernandez, I. S.—Total congenital detachment of the retina in two brothers. (Desprendimiento total y congenito de la retina en dos hermanos.) *Archivos de oftalmología Hispano-Americanos*, Julio 19, 1905, and *Archives of Ophthalmology*, July, 1905.
- (14) Robertson, William.—Memorandum on the third eyelid in a human subject. *Transvaal Medical Journal*, September 1st, 1905, *Lancet*, November 4th, 1905, and *British Medical Journal*, January 13th, 1906.

- (15) von Hippel, Eugen.—Is the co-existence of congenital microphthalmos and glioma retinæ in the same eye a proved fact? (Ist das Zusammenvorkommen von Mikrophthalmus congenitus und Glioma Retinae im gleichen Auge sicher erwiesen?) von Graefe's *Archiv f. Ophthalmologie*, 12 September, 1905.
- (16) Landman, Otto.—A case of symmetrical congenital absence of choroid and retina except in the macular area. *Archives of Ophthalmology*, September, 1905.
- (17) Steiner, L.—Pigment spots in the cornea. (Pigment-flecke der Hornhaut.) *Centralbl. f. prak. Augenheilk.* Oktober, 1905.
- (18) Cosmetatos, G. F.—Coloboma of the macula lutea. (Zur Kenntniss des Kolobom der Macula Lutea.) *Zeitschr. f. Augenh.*, Dezember, 1905.
- (19) Coats, George.—Peculiar appearance of a retinal vein. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 309.
- (20) Coats, George.—Congenital abnormalities of retinal vessels in two sisters. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 316.
- (21) Harman, N. Bishop.—Abnormal congenital pigmentation of one eye. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 318.
- (22) Collins, E. Treacher.—Small coloboma of upper eyelid, with peculiar thickening of the conjunctiva on its inner surface. *Trans. Ophthal. Society*, Vol. XXV (1905), p. 319.
- (23) Marple, Wilbur B.—A case of persistent pupillary membrane of rather considerable size. *Trans. Amer. Ophthal. Society*, Vol. X, Pt. III, 1905.
- (24) Stock, W. and v. Szily, A.—On a congenital anomaly of the fundus hitherto undescribed. (Eine noch nicht beschriebene kongenitale Anomalie des Augenhintergrundes.) *Klin. Monatsbl. f. Augenheilkunde*, Januar, 1906.
- (25) Connor, Ray.—Congenital orbital cyst associated with microphthalmos. *Archives of Ophthalmology*, January, 1906.

- (26) Peters, A.—On congenital defects of Descemet's membrane. (*Ueber angeborene Defektbildung der Descemetschen Membran.*) *Klin. Monatsbl. f. Augenheilkunde*, Januar, Februar, und Marz, 1906.
- (27) Rivero, Pedro.—Pseudo-trichiasis from epicanthus. (*Pseudo-triquiasis por epicanthus.*) *Archiv. de Oftal. Hisp.-Amer.*, Mayo, 1906.

(1) Stevenson's patient was a boy, 5 years of age, suffering from buphthalmos. The tension was increased, the discs were cupped and atrophic, and nystagmus was present. The condition differed in no way from the condition usually present in this disease. The cause of it is briefly discussed. C. D. M.

(2) The case described by Grossmann was that of a girl, aged 16, who appeared to have congenital unilateral anophthalmos with a cyst developed. On removing the cyst, a rudimentary eye was discovered at the apex of the orbit. C. D. M.

(3) J. Galezowski describes a case of double coloboma of the iris in each eye. It was observed in a female, *ætat* 61, who consulted him for presbyopia. The condition was congenital. The lower coloboma was directly downwards and the upper was directed up and out. The appearances were perfectly symmetrical in the two eyes. In each eye the axes of the two colobomas formed an angle of about 135° . There was no coloboma of other membranes of the eye. The irides were well-marked and active. J. JAMESON EVANS.

(5) Kipp describes a curious symmetrical anomaly in the eyes of a mentally-deficient lad, 10 years of age, whose sight was equal only to counting fingers at about ten feet. Situated in the vitreous humour, and best seen with a +12 D. lens, was a fixed bluish-white mass, of conical shape, with its apex at or near the retina. An almost black tubular formation with its free end fimbriated like the Fallopian tube, was attached to the mass mentioned above. The discs were small and white, and their vessels emerged from the temporal edge. A kind of cleft in the choroid extended horizontally outwards from the temporal margin of the papilla, and some of the retinal vessels coursed in the channel thus marked out. There were, besides, other curious changes in the retina and choroid, for a description of which reference must be made to the original communication. Kipp regards the tubular process mentioned above as due to a persistence of connective tissue surrounding the foetal artery of the vitreous body, detached from the hinder surface of the lens and pushed into the vitreous, where it had become fixed by adhesions.

(7) Gilbert describes and figures two cases, one of a

unilateral partial iridermia. The defect in the iris being up and in where no sign of it could be seen, down and out a well marked but rather narrow band of normal iris tissue was present. This part reacted very slightly to light and to accommodation, and rather better to eserine and to atropine. The second case is one of multiple indentations of pupillary margin of the iris. These are irregular and are present all around the circumference. This iris reacted well to light, accommodation, myotics, and mydriatics. The author attempts to explain this last case by assuming at these points a more firm union between the pupillary membrane and the iris than usual, and hence they disappeared with the absorption of the pupillary membrane.

A. LEVY.

(8) The aim of Duane's paper has been to collate all of Evans' cases with those that have occurred in the author's practice, in association with others that have been accessible in literature or in the case books of the author's colleagues.

After citing fifty-one authentic instances of the condition, and summarising them under the heads of subjective and objective symptoms, the author offers a number of explanations to account for the phenomena. The causal condition, he considers himself justified in believing, is peripheral in site; this he says is so, as the interior muscles of the eye are invariably exempt from disturbances. As to treatment, he believes that, in general, an operation is not required; and, in fact, that it is to be avoided whenever possible.

JOSEPHINE W. HILDRUP.

(9) The first case seen by Kipp was that of a prepapillary vascular loop of the right retinal artery in a fifteen-year-old boy who had consulted him for an inflammation of both eyes. The right eye, which was emmetropic, and possessed normal vision, plainly evidenced a protruding vessel which was distinctly a part of the arterial system of the retina—an exaggerated degree of the loop formation of arteries so often seen in the retina.

The second case in the left—also emmetropic—eye of the same subject, consisted in an absence of the arterial vessels from the central part of the disc; a defective development, the author tells us, of the retinal arterial system in the same person.

C. A. O.

(10) Ash describes and figures two cases of this interesting and rather rare anomaly. He discusses the origin of the condition, and is of opinion that the ordinary explanation given, namely, failure of closure of cleft in secondary optic vesicle, is insufficient to explain the appearances in most cases. There are cases in which the above explanation doubtless represents the true cause, but in the majority of so-called colobomata of the optic nerve, it is unnecessary to assume so great a lack of development.

Insufficient development of the sclera at the point of entry of the optic nerve—and this weak spot pushed out by the intraocular tension to resemble a cyst—would explain the appearances in most of these cases, and hence the more elaborate explanations are unnecessary.

A. LEVY.

(11) **Fortunati's** patient was a young girl, whose left upper lid was always retracted whenever the eyes were open. The lid fell normally when the eyes were shut. The deformity had been noticed in infancy, and was accompanied by no other defect.

H. G. GRIMSDALE.

(13) **Grossmann** reports narrow, oval pupils, eccentrically situated, and scarcely reacting to atropine, in a female, aged $5\frac{1}{2}$ years. No heredity could be traced.

(13A) In **Fernandez's** two cases an opacity was noticed behind the pupils at the age of a few weeks. At first a diagnosis of glioma was made, but the symptoms did not seem definite, and it was decided to wait. In time it was possible to recognise total complete detachment in both eyes. The younger brother of the first patient was brought, nine years after, to Fernandez in the same condition. Five other children were normal.

(14) The malformation described by **Robertson** was met with in an adult male Indian, of Dravidian stock, who displayed no other defect. The third eyelid* was as thick as a sixpenny piece, lay under the right upper eyelid, and protruded 2mm. beyond the margin of the last-named structure. The exposed part was darker than the remainder.

(15) An eye said to have been very small from birth, was removed for consecutive irritation from a man of 29 years. **von Hippel** found complete atrophy of the optic nerve, symptoms of plastic iridochoroiditis with ossification, partial absorption of the lens and tumour-like masses, which indeed formed the greater part of the contents of the eyeball. The growth certainly originated in the retina, and was produced by proliferation of the glia, but Hippel does not admit its classification as glioma, considering its want of all the important characteristics of the same, and proposes to term the process "Gliosis" instead. He declines to discuss the question how far this condition is attributable to congenital malformation, especially of the vitreous. But in re-examining sections of Helfreich's case, which has hitherto formed the only classical example of the co-existence of microphthalmos and glioma, he finds that here too the diagnosis of glioma cannot be upheld. He considers Helfreich's case to be more or less identical with his own, and thinks the growth of the retina similar to pseudo-glioma.

R. GRUBER.

(16) This interesting case is so carefully described

* Schaprirger (*Centralbl. f. prakt. Augenheilk.*, Mai, 1906), however, believes that the condition in Robertson's case was epitarsus—that is, a congenital anomaly probably due to amniotic adhesions.—EDITORS.

by Landman that we can do no better than to give his conclusions. "From the external appearances nothing of the internal defects would have been suspected. We have, then, two eyes symmetrically affected. No choroid and no choroidal vessels; a small area of retina which functionates; undeveloped vein and central artery which does not supply the macular retinal area, this area, however, being supplied by branches of the short posterior ciliary artery; no posterior ciliary or long posterior ciliary arteries within the bulbous; an anomalous state of the vorticose veins; a normal ciliary body and iris supplied by the anterior ciliary arteries, and a normal vitreous and lens." The author believes that the fact of the centripetal ingrowth of the axis-cylinder fibres of the ganglionic cells of the retina would more easily explain the isolated area of retina than were it supposed that the fibres grew from the brain into the retina. The idea prevails that intraocular tension is maintained by transudation from the choroidal vessels, and if it were not for this, filtration would occur through the coats of the eye and the bulb would shrink: this, he asserts, is surely refuted by this case. "The pigment probably was formed in the outer layer of the retina without the aid of blood-vessels, but perhaps its renewal was subsequently interfered with by the obliteration of choroidal vessels, and perhaps this accounts for its absence throughout the fundus. The facts would indicate an anatomic independence of the iris and choroid. The existence of a vascular connection between the lens and choroid at no time can disturb the development of the iris. "A union between the vessels of the tunica vasculosa retinæ and hyaloid artery probably had taken place because the central vessels have normal arrangement, although undeveloped." By referring to the preceding portions of the text, Landman states: "We may infer that the circumscribed area of the retina is a reversion to a state found in the lower vertebrates." He says: "I have been unable to find any vertebrate with eyes normally devoid of a choroid, and consequently can only consider this as an imperfect case of atavism. We have, then, he believes, an arrest of development of the choroid and the retina due to an embryological obliteration of the entire group of the long posterior ciliary arteries and an almost complete obliteration of the short posterior ciliary, except that which nourishes the macular plexus."

C. A. O.

(17) Steiner, who is resident in Java, records two cases of pigmentary deposits in the cornea in natives of this region. He is of opinion that they are analogous to pigmented naevi in the skin as found among all races, and particularly resemble the pigmentary deposits found in the conjunctiva, rarely in Europeans, frequently among the Javanese. A. LEVY.

Cases. There is a rare case of coloboma of the fundus of a child otherwise healthy and of healthy parents. The fundus was surrounded with patches of pigment and had a few small tubercles and dots on its surface. There were, however, no large and no small patches of choroiditis. The fundus was covered by a thin white scotoma over the macular area, and by a dense scotoma over the large choroiditic tubercles. The author is inclined to hold these cases of macular coloboma are due to an intra-ocular inflammation of the choroid and retina, but the evidence is, as has been supposed, the presence of other diseases, a condition in this eye being further evidence in favor of the infectious origin. A. LEVY.

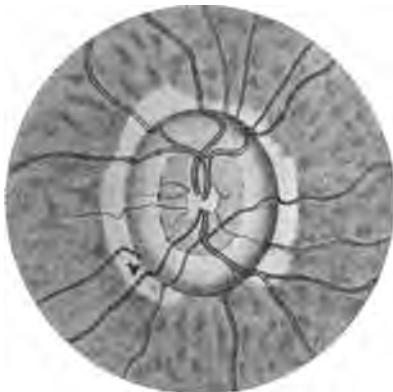
Cases. It is interesting whether a peculiar division, kinking, and evagination of a portion of a retinal vein, seen in the fundus of a girl of 15 years, is to be regarded as a congenital anomaly or as the result of some pathological process.

Marges. Report of case of persistent pupillary membrane occurring in a woman of age 27 years. Her left eye showed several strands of tissue passing from the upper nasal quadrant of the anterior surface of the lens down and out to the lower temporal curvature of the sclera. As shown by the accompanying drawing, they were attached over the middle of the



pupil to the lens-capsule. The eye was myopic; vision was 15/200, not susceptible of improvement. It should be noted that the patient's other eye showed a coloboma of the iris downward, along with traces of pupillary membrane. S. S.

(24) The following rare condition was observed by Axenfeld in a patient, aged 26 years, and is now published by Stock and Szily: at the region of the disc, the fundus of an otherwise normal eye showed a slightly oval area of the size of 4 disc-diameters, deeply excavated (5 mm.) and surrounded by a halo. At the



bottom of the excavation the disc was visible, perfectly normal with a central physiological cup. The patient's vision in this eye was 6/12. The authors lay stress on the comparatively good sight and on the perfect formation of the disc as distinguishing the condition from cases of coloboma of the optic nerve.

C. MARKUS.

(25) The case reported by Connor seems, the writer says, "unusually typical of this class of malformation." The microphthalmic eye was unusually developed, and the communication between the cavities of the globe and the cyst was well shown. The question whether the cause of such malformation is inflammatory or not he believes is far from settled—"We can only say not proven." He thinks that the cyst in his case had its origin from embryonic tissue which should normally have gone to form the eye; but whether the mesoplastic origin of the vitreous was at fault or the tissues around the foetal cleft of the secondary optic vesicle, he says, is hard to say. He is of the opinion that Hess's view would certainly serve to explain the specimen better than that of Kundrat and Mitvalsky. He states that the only practical consideration lies in the differential diagnosis from meningocele, which is sometimes difficult. "In this connection, aspiration of the cyst and a chemical and microscopical examination of the aspirated fluid should be performed before a more radical step is undertaken, as an attempt to enucleate a meningocele might easily lead to meningitis and death."

C. A. O.

(26) **Peters'** contribution strengthens the ranks of those who regard certain congenital abnormalities of the cornea and iris as due to mal-development and not to inflammation. The case he observed was that of a child born with a central disc-like opacity of the cornea; the periphery of the disc was much more saturated than its centre. The sclerotic tissue seemed to encroach upon the cornea from all sides, particularly above and below, forming an "embryotoxon." The iris was only visible at the periphery, where a shallow anterior chamber could be made out. It must be mentioned that the child's mother suffered from gonnorrhœa and that the child itself had a bilateral muco-purulent conjunctival discharge, which, however, contained no gonococci and soon disappeared. After nine months, during which the opacity cleared to a certain extent, the child died of tetany. Both eyes were examined microscopically. It was found that the deeper layers of the cornea and Descemet's membrane were absent in the centre, corresponding to the opacity, so that here the tissue was reduced to less than half its normal thickness and also showed a slight bulging. Bowman's membrane was indistinct in this area and the epithelium showed certain changes. Peters accounts for these and for the opacity by the imbibition of the aqueous humour, which was due to the absence of Descemet's membrane. The central defect was encircled by a ring-shaped anterior synechia; at the points of insertion of the iris the cornea showed a considerable thickening. This synechia and shallow peripheral anterior chamber was separated from a central anterior chamber of small extent but about normal depth. Peters lays stress upon the absence of all round-cell infiltration, and accordingly rejects the interpretation of the corneal defect as an "internal ulcer." He is struck by the correspondence of the bulging centre of the cornea with the convexity of the anterior lens surface, and concludes that an unduly prolonged contact of the lens with the cornea was the cause of imperfect differentiation.

C. MARKUS.

(27) In this case **Rivero** noted a large epicanthal fold, which commencing at a point about 10 mm. from the external angle of the fissure, 4 mm. below the lashes, gradually approached the level of the internal canthus. When the patient looked down, the fold pressed the lashes up into the eye. The removal of the fold was followed by an immediate cure. Rivero has not been able to find mention of any similar case.

HAROLD GRIMSDALE.

V.—TREATMENT.

(Sixth Notice.)

- (1) **Risley, S. D.**—**Sub-conjunctival salt injections.** *Journ. American Medical Association*, August 12th, 1905.
- (2) **Alexander, L.**—**Some injuries to the eye following subconjunctival injection of salt solution.** *Archives of Ophthalmology*, January, 1906.
- (3) **Lundsgaard, K. K. K.**—**On the treatment (light-treatment) of lupus conjunctivæ (Behandlung [Lichtbehandlung] von Lupus conjunctivæ.)** *Klin. Monatsbl. f. Augenheilkunde*, Februar-März, 1906.
- (4) **Stargardt.**—**Necrosis after injections of suprarenin. (Nekrosen nach Suprarenin-Injektionen.)** *Klin. Monatsbl. f. Augenheilkunde*, Februar-März, 1906.
- (5) **Bernheimer, St**—**On the treatment of gonoblenorrhœa. (Zur Behandlung der Gonoblenorrhœa.)** *Klin. Monatsbl. f. Augenheilkunde*, Februar-März, 1906.
- (6) **Oppenheimer, E. H.**—**The value of X-rays in orbital tumors. (Der Wert der Radiographie bei Orbital-Tumoren.)** *Klin. Monatsbl. f. Augenheilkunde*, April-Mai, 1906.
- (7) **Reuchlin, H.**—**Experiences with Koch's tuberculin.** (Ueber Erfahrungen mit dem Kochschem Tuberkulin.) *Klin. Monatsbl. f. Augenheilkunde*, April-Mai, 1906.
- (8) **Bettremieux.**—**Protection of the eyeball during the application of radiotherapy.** (Protection du globe oculaire pendant les séances de radiothérapie.) *La Clinique Ophtalmologique*, 25 mai, 1906.
- (9) **Gendron and Servel.**—**Combined anæsthesia by chloride of ethyl and chloroform as applied to ophthalmic surgery.** (De l'anesthésie combinée par le chlorine d'éthyle et le chloroforme appliquée à la chirurgie oculaire.) *La Clinique Ophtalmologique*, 25 mai, 1906.
- (10) **Koster, W. Gzn.**—**Sodium chloride in eye work.** (Kalium chloricum in der Augenheilkunde.) *Zeitschrift für Augenheilkunde*, Juni, 1906.
- (11) **Ramsay, A. Maitland.**—**The old and the new in ocular therapeutics.** *Lancet*, July 7th, 1906.

(1) In an interesting article, **Risley** states that in his early experience "injections of solutions of the mercurial salts were first experimented with, but soon abandoned

because of the severe pain they occasioned, and the more or less violent reaction which was liable to follow their employment. Solutions of chlorid of sodium in varying strength were then substituted, and experience soon excluded strong solutions of this salt. For several years, only the so-called physiologic salt solution has been employed at about the temperature of the body." In the cases reported, "this was the solution invariably used, and extended experience has shown that it can be injected with practical impunity." In many hundreds of injections he has not seen an instance of inflammatory reaction, or any thickening of the conjunctiva or subconjunctival tissues ; or any adhesion of the tissue to the sclera, even when the injection had been made daily, or on alternate days, continuously for many consecutive weeks. He says "that while the results have often been disappointing, there has not been any cause for regret because of harm having been done."

C. A. O.

(2) **Alexander** reports three cases where bad results followed the injection of 2·5 per cent. to 10 per cent. salt solution beneath the conjunctiva in the treatment of interstitial keratitis, choroiditis, and detachment of the retina respectively. The injuries took the form of adhesions between the conjunctiva and sclera (1), local necrosis (1), and temporary changes in the cornea and lens (2). It is somewhat unfortunate that the author omits to describe exactly how and where the injections were made, a point upon which the greatest stress has rightly been laid by Darier, one of the foremost advocates of this method of treatment. S. S.

(3) **Lundsgaard's** experiences with the various forms of conjunctival tuberculosis, especially with lupus, lead him to the following conclusions : wherever practicable excision by knife should be preferred to all other methods. Cauterisation, scraping with the sharp spoon, and application of formalin, should rank as auxiliaries, not as chief methods of treatment. Freezing of the tissue with ethyl chloride cannot be recommended. Lundsgaard has apparently found a safe and reliable remedy in the ordinary light treatment for that important class of cases in which excision is out of question. Prolonged exposure of the palpebral conjunctiva to the Finsen lamp was not followed by any untoward reaction, whereas the curative effects of the treatment surpassed even those seen in the skin. After eversion of the eyelid, the globe was protected with moist absorbent wool, and the pressing glass placed firmly over the conjunctiva against the orbital margin ; the number of applications varied between six and nineteen, and the exposure lasted from one to two hours. Four patients with lupus conjunctivæ were treated in that way, and, it appears, cured definitely. Lundsgaard purposes trying the same method in trachoma. C. MARKUS.

(4) In two cases of excision of the lacrymal sac under local anaesthesia, Stargardt had injected a 1% solution of cocaine with altogether eight drops of suprarenin. There was much bleeding, which continued for some time after the operation. When the bandage was changed on the third day, all the tissues which had been infiltrated were found to be perfectly white and insensitive—in fact, necrotic. The wounds healed satisfactorily in the end, so that a few weeks later not a trace of the necrosis could be discovered. Stargardt advises, in order to avoid local damage to the tissues as well as general intoxication, to add one drop of suprarenin (1 : 1,000) to each ccm. of 1% solution of cocaine, and to inject not more than $1\frac{1}{2}$ to 2 ccm.

C. MARKUS.

(5) Bernheimer is convinced that the time-honoured silver nitrate is more efficacious than all its modern substitutes, such as protargol, argentamin, etc. But his experiences during several years have led him to regard airol as a superior remedy for the gonorrhœal inflammation of the eye of infants or adults. It owes its effect to the formation of free iodine, and, being a powder, can be brought into more prolonged and intimate contact with the conjunctiva than solutions of silver nitrate. A further advantage is that it can be applied in the earliest stage of the disease. After the eye has been cleaned in the usual way, the everted lower lid is thickly covered with airol by means of a Daviel spoon. It is advisable to wait until the powder has become converted into a paste by the secretion of the eye before the lid is allowed to slip back gradually while the upper lid is slightly raised. This application is repeated two to four times a day. It should be noted also that Bernheimer prefers fomentations to the iced compresses so largely used in the treatment of blephorrhœa.

C. MARKUS.

(6) Oppenheimer puts forward a plea for the use of X-rays in orbital tumors as a valuable aid in diagnosis. Osseous tumors especially lend themselves to demonstration by that means. In the author's case of primary osteoma of the orbit, X-rays not only gave evidence of the presence and nature of the growth, but also furnished information as to the condition of the nasal sinus.

C. MARKUS.

(7) Reuchlin's communication strengthens the good opinion which v. Hippel and others have formed of new tuberculin in the treatment of tuberculous affections of the uveal tract. Two cases of choroiditis and fourteen of cyclitis and iritis were successfully subjected to a systematic treatment by injections at the Tübingen *clinique*. The number of the injections varied from 10 to 32 and the dose from 1/500 to 1 mg. The tuberculous nature

of the disease was made evident, partly by the clinical aspect of the cases and partly by the preliminary injections of 1-2-3 mg. of old tuberculin.

C. MARKUS.

(8) **Bettremieux** deprecates the makeshift use of lid-clamps and so on as protectors of the globe. He has investigated the relative impermeability to X-rays of Müller's Paris enamel shells, and of the circular or ovoid lead cups made by Luér. The latter have a small handle which make them easy of introduction within the lids, and are found by Bettremieux to be quite decidedly less permeable than the enamel shells, which latter are insufficiently opaque to X-rays. ERNEST THOMSON.

(9) **Gendron** and **Servel**, after pointing to the fact already mentioned by Dastre (*Les Anesthésiques*, Paris, 1890), namely, that accidents with anaesthetics are relatively more common in ophthalmic than in general surgery, recommend, according to their experience, the preliminary use of chloride of ethyl before giving chloroform.* There is less excitement and less shock, less anaesthetic is used (only 25 c.c. of chloroform were used during an operation lasting one and a-half hours), accidents are rare, and recovery rapid. The patient can sometimes return home the same day.

ERNEST THOMSON.

(10) **Koster** has used a 3% solution of sodium chloride extensively in the treatment of affections of the conjunctiva and cornea, and in the present communication unreservedly recommends the medicament to other surgeons. It resembles a 3% boric acid solution in the fact that it is practically devoid of irritating qualities even in inflamed eyes. It acts partly as an astringent and partly as an antiseptic. As regards the latter property, Koster alludes to some experiments made in van Calcar's laboratory, according to which several kinds of micro-organisms from diseased eyes, which grew luxuriantly on agar-agar, failed to develop when that medium was mixed with 3% sodium chloride.

S. S.

(11) In the course of an instructive lecture on the old and the new in ocular therapeutics, **Ramsay** touches more especially on such subjects as refraction, mydriatics, antiseptics, anaesthesia, analgesics, and serum-therapy. Of the newer silver compounds—protargol, collargol, and argyrol—the author finds protargol, with its 8·3% of metallic silver, to be the most irritating and liable to stain the conjunctiva. Nevertheless, it is the best remedy for local application in chronic inflammations of the conjunctiva and eyelids, employed as a 10% to 25% solution or ointment. Collargol, in his experience, finds its particular application in recent wounds of the eyeball, used in the form of gelatine wafers containing 10% of the remedy, or as a 5% to 20% solution or ointment. The remedy has also "a wonderful power" in clear-

* The change from the one anaesthetic to the other requires care. Several deaths have occurred at this somewhat critical moment.—EDITORS.

ing up recent opacities of the cornea. Argyrol is the least irritating of the three compounds named, and in acute conjunctivitis gives the best results of any. It is of service in blepharorrhœa of the lacrymal passages, and Ramsay has found it superior to iodoform when introduced into the anterior chamber for the control of intraocular suppuration. Chinosol (1 : 4,000) is recommended in the treatment of infected ulcers of the cornea ; and Ramsay praises trikresol (1 : 1,000) as a lotion for the removal of discharge from an inflamed conjunctival sac. With regard to the vexed question of subconjunctival injections, Ramsay has found them of service in the fundus changes of high myopia and also in detachment of the retina. He generally employs 8% sodium chloride in a 1 in 2,000 solution of mercury bicyanide, and injects 5 to 20 minims of the mixture. Cocaine in a strength not exceeding 2% is still, the author believes, the best local anaesthetic. For general anaesthesia chloroform is the best agent, but for brief operations ethyl chloride preceded by nitrous oxide is preferable. A 5% solution of dionine is the most efficient agent at our disposal for relieving the severe pain of glaucoma, iritis, scleritis, and so forth. Its action, however, is enhanced if it be applied alternately with collargol. Amongst the older remedies to which Ramsay is still wedded may be mentioned leeches in irido-cyclitis, and cauterisation of the eyelids with silver nitrate in keratitis.

S. S.

VI.—EXCISION OF THE LACRYMAL SAC.

- (1) Gendron.—Excision of the lacrymal sac: its advantages and its indications. (*L'ablation du sac lacrymal : ses avantages et ses indications.*) *L'Ophthalmologie Provinciale*, T. II., p. 142, décembre, 1905.
- (2) Gendron.—Excision of the lacrymal sac: technique and results. (*L'ablation du sac lacrymal : technique, résultats.*) *L'Ophthalmologie Provinciale*, T. III, p. 174, fevrier, 1906.
- (3) Fromaget.—The radial cure of dacryocystitis and of lacrymation. (*Cure radicale des dacryocystites et du larmoiement.*) *L'Ophthalmologie Provinciale*, T. III, p. 23, mai, 1906.

(1 and 2) Gendron advises excision of the lacrymal sac for dacryocystitis (1) when the sac is dilated ; (2) when the routine treatment promises to be very tedious, especially if the patient cannot arrange a long attendance ; (3) when complicated by

corneal ulcers ; (4) as a preliminary to iridectomy or cataract operations. He is of opinion that half the cases of chronic dacryocystitis are either unimproved or only temporarily benefited by the usual treatment. The steps of his operation are as follows :—(1) Under local anaesthesia, an incision is made which, starting 50 c.m. above the internal tendon of the orbicularis, which is divided 3·5 c.m. from the inner canthus, runs downwards and outwards for about 2·5 c.m., avoiding the angular vessels ; (2) the sac is dissected out without perforating its walls, so as to avoid infection of the wound, and is cut off as far as possible down the nasal canal, the entry to which is cauterised ; (3) the wound is closed by sutures, and a pressure bandage is applied.

Gendron has performed the operation thirty-five times with the following results. The suppuration was cured in every case, and there was only one in which owing to infection of the wound from bursting of the sac it lasted a month after the operation. The lacrymation was unaltered five times, markedly diminished eleven times, and cured or practically cured nineteen times. In ten cases a most beneficial influence was exercised on infected corneal ulcers, while in nine cases done as a preliminary to iridectomies or cataract extractions the subsequent operations were not followed by any suppuration.

R. J. C.

(3) **Fromaget** is a strong supporter of excision of the lacrymal sac for the cure of dacryocystitis in cases where the treatment by dilation and disinfection of the lacrymal passages is contra-indicated, but always combines the operation with curettage of the nasal duct, to avoid infection and provide free drainage, and with excision of the palpebral lacrymal gland to relieve lacrymation. In operating he makes a big incision and divides the direct tendon of the orbicularis, so as to expose the entire gland. He has obtained union by first intention in eighty out of eighty-two cases.

R. J. C.

REVIEWS.

Refraction and How to Refract. By JAMES THORINGTON, A.M., M.D. Third edition. London : Rebman, Ltd., 129, Shaftesbury Avenue, W.C. 1905.

In this small volume of 314 pages, which contains 215 illustrations, of which 13 are coloured, Dr. Thorington has managed to give a clear and unvarnished account of refraction and allied subjects, such as optics, retinoscopy, muscle-balance, and the

fitting of spectacles. Refraction, and the optical principles underlying it, are described from the practical, as distinguished from the mathematical, standpoint. As the author himself says, it is written more especially for readers "who cannot readily appreciate the classic treatise of Donders." A careful perusal of the book has convinced us that this end has been attained. It abounds with useful hints, some of which are not so widely appreciated in this country as they deserve. In brief, *Refraction and How to Refract* is an excellent introduction of a most practical character for those who are beginning to work at this important branch of ophthalmology and as such it can be unreservedly recommended. A few criticisms of a minor kind may be offered for the author's consideration. For example, figure 74, representing the four minute test letters introduced by Dr. James Wallace, is so badly printed as to render the last three or four rows indecipherable, even with the aid of a good magnifying glass. A similar remark applies to figure 73 on page 74. The expression on page 291, "A rival confrère," is a curious contradiction in terms. The reference to a "blinder" for covering up one eye in the treatment of squint (page 282) is given to figure 160, which refers to a retinoscope and not to figure 172 on page 203, as it should be. "Pinc-nez" (page 292) is an unusual and incorrect way of spelling "Pince-nez." One of the instructions for examining the eye, given on page 226, reads as follows : "Inspect the lacrymal apparatus in all its parts," a direction somewhat difficult to follow, having regard to the anatomical position of the parts in question! A misprint on page 180, where the contraction "Abb." stands for "Abd.," might well be rectified in the next edition of Dr. Thorington's very practical and useful book.

Encyclopédie française d'Ophthalmologie. By F. LAGRANGE. AND VALUDE, 8 vols. Paris: Octave Doin, publisher. Price £5.

The *French Encyclopedia of Ophthalmology*, published under the direction of Lagrange and Valude, with the collaboration of several French and foreign *savants*, forms a work composed of eight large volumes (600-1000 pages), and contains a *résumé* of our actual knowledge of all that relates to ophthalmology.

The first four volumes have appeared, and treat successively of the history of ophthalmology, of the anatomy of the orbit and of the ocular globe, of the general physiology, and histology of each membrane of the eye; indeed, of embryology, teratology, and general pathology. Geometric optics, physical and physiological, as well as ophthalmometrics and ocular dioptrics, are studied at length by A. Broca, Sulzer, and

Escheming, whose articles form the most important of all in the volumes which have so far appeared (the third). The ocular movements, focal ametropia, astigmatism, the determination of the functions of the retina are here discussed clearly and at length, aided by numerous illustrations.

It is impossible to give here a *résumé*, even incomplete, of this work. Let us, however, note in passing, the exposition of the history of ophthalmology by Pansy (Avignon), designed naturally by his previous researches to write this interesting chapter. Here he studies ophthalmology from the time of the Greek and the Arab up to the commencement of the nineteenth century. *A propos* the anatomy and physiology of the motor apparatus, Motaïs gives a description of Tenon's capsule, very clear, but perhaps, all the same, a little too schematic. According to him, Tenon's capsule is but the fascia (?) of the muscular group of the orbit. Then comes the anatomy of the face by Rollet, that of the eyelids, with a beautiful plate, by Terson; the anatomical and physiology study of the lacrymal apparatus by Kalt, is unfortunately a little brief, and especially the microscopic anatomy. Truc and Vialleton have a beautiful description of the crystalline lens. The ocular globe, the vitreous body, the study of which is made by Berger and by Röhmer, are badly illustrated in this series, as they are accompanied by designs which are too schematic and sometimes incorrect (*e.g.*, p. 156, where one sees in the zonula a smooth homogeneous patch, whereas the zonula is entirely a fibrillary composition), or else they are insufficiently illustrated. It is the same with the conjunctiva, and the cornea, of which the microscopic anatomy is really insufficient, and, above all, the bibliography. The first volume finishes with a complete presentation of the anatomy of the uveal tract by Venneman, followed by a fine study of the nervous system by Rochon-Duvignaud, where the author shows that the retina presents the same structure as the sensory terminations of the other organs of sense, only in a more complex degree.

Volume II. is written almost entirely by Angelucci (Palermo), who treats of the general physiology of the globe, and by Van Duyse, who makes a complete study of embryology and teratology. This extremely important chapter is accompanied by original pictures, and we find, treated in turn, the study of the foetal fissure, the evolution of the ocular vesicle, the rotation of the ocular globe, the embryology of the crystalline, of the vitreous, the uveal tract, and of the retina. As to the teratology of the eye, this is presented with a voluminous mass of facts and personal observations. This study is finished with an important chapter which forms its synthesis. It is followed by a complete bibliography (33 pages of close printing).

Following comes the detailed description of Motais of the comparative anatomy of the motor apparatus, as well as that of the ocular apparatus, followed by the anthropometric study of the eye by Kalt.

In Volume IV. ocular pathology and its relations to general pathology are studied. This is contributed by Berger, who has successively treated the maladies of the nervous system, of the skin, of the nasal fossa, and the affections of the internal organs and their ocular manifestations.

Morax studies in detail the examination of the patient, giving a very clear and complete exposition. Röhmer writes the entire chapter upon the general affections of the globe, traumatisms and their consequences, foreign bodies, burns, wounds received in war, etc.

The following volumes, V., VI., and VII., will treat of ocular pathology, but not of medical therapeutics and surgery of the eye, which will be dealt with separately in the last volume. This part will also contain all the accessory chapters—simulations, ophthalmological geography, legal medicine, hygiene, etc.

It is an important work, excellent, in spite of—we say it with regret—the inexactitude of several pictures, and the insufficiently epitomized study of certain organs, of which this necessarily incomplete analysis can give but an imperfect idea.

E. MAWAS.

The World's Anatomists. By G. W. H. KEMPER, M.D., Professor of the History of Medicine in the Medical College of Indianapolis, Indiana, U.S.A. Published by P. Blakiston's Son and Company, Philadelphia, Pennsylvania, U.S.A., 1905. Small 8vo., pp. 79. Price, 50 cents.

To the student of ophthalmology, this little work offers a "close acquaintance with the lives of the men whose names are given" to the various portions and contiguous parts of the eye: from it, we learn that the term "Gasserian ganglion" is to be attributed to the eighteenth century anatomist—Johann Laurentius Gasser; that Volcherus Koyter (also written Coiter), the Dutch anatomist and German physician of the latter half of the sixteenth century, first described the corrugator supercilii muscle, which for a long period of time was popularly known as the "musculus Coiteri"; and that the Meibomian glands received their name from the German physician, Heinrich Meibom, who flourished one century later. From it we find (how few know!) that another anatomist—a Frenchman this time—Jean Riolan, jun., born in 1577 and died in 1657, gave his name to us by his description of that portion of the orbicularis palpebrarum muscle which "passes among the roots

of the eyelashes": and it is with the greatest interest that we read that Anton Nuck, the Leyden professor of anatomy, blessed with two separate biographical periods of existence between the years 1669 and 1742, "was first among the moderns to perform paracentesis of the cornea!"

How great an incentive for better work it is for us now to know that John Godfrey Zinn, who was born in 1727, and whose name is preserved to us in the lenticular zonula and "the ligament or aponeurosis of the inferior and internal recti muscles of the eye,"—and who published such a superb atlas of the anatomy of the eye,—lived but thirty-two years. So, too, with Demours and Descemet, with their excellent descriptions of the elastic membranes bearing their names—one, a French surgeon and ophthalmologist, and the other, a French physician; with Felix Fontana, the Italian anatomist (born in Tyrol), who gave special attention to the lymph spaces of the eye; with Jacob Antonius Moll, the Dutch histologist, from whom the glands of Moll in the eyelids receive their name; with du Petit, surnamed François Pourfour, with his sacculated canal encircling the crystalline lens; with J. R. Tenon, of capsule fame, the great French surgeon and oculist, born in 1724, and dying at the ripe age of ninety-two years—after "having written meritoriously on cataract and other ocular diseases"; and with Wachendorf, the German anatomist, who in 1737 discovered the pupillary membrane. In sooth, all of these ophthalmic worthies, who are duly and properly recognized in this monograph, offer precedents, exemplars, and inducements to give renewed courage, greater stimulation, and continued research into the many deeper and still undetermined mysterious truths to those who work in ophthalmology for good work's sake alone.

How brilliant this galaxy of additional brilliant (and later) names: Bonnet, von Hasner, Horner, Huscke, Jacob, Müller, Rosenmüller, Soemmering, and Stilling, followed by Bowman, Bruch, Crampton, Leber, Manz, Mauthner, and Wilde, becomes, when it is considered how familiar they are to all of us in our daily work; in fact, names with their deeds, that must be imperishable in scientific ophthalmology.

The work, as a whole, is a pleasure for careful perusal; while its individual biographies are most useful for quick and ready reference. The author and the publishers are to be congratulated upon its production.

CHARLES A. OLIVER.

NOTES AND ECHOES.

Obituary. DR. BOERNE BETTMAN, one of the leading Chicago ophthalmic surgeons, died on May 25th last, at Chicago, aged 50 years. He

had held the posts of surgeon to the Illinois Eye and Ear Infirmary and the Post-Graduate Medical School, in addition to having been Professor of Ophthalmology at the College of Physicians and Surgeons at Chicago. The cause of death was multiple sclerosis.

* * * *

Appointments. DR. A. DALÈN has been appointed Professor Extraordinary of Ophthalmology in the University of Lund, Sweden. Dr.

Franz Schieck, *privat-docent* in Göttingen, has been accorded the title of Professor. Dr. Casey Wood has been elected President of the American Academy of Medicine. Dr. Ernst Blessig has been appointed director of the St. Petersburg Ophthalmic Institute.

* * * *

Scientific Meeting. THE American Academy of Ophthalmology and Otolaryngology will meet at Detroit on August 30th and 31st and September 1st, 1906. Among the numerous papers already announced we observe one by Mr. R. Marcus Gunn, of London, who has taken as his subject "Ailments of the Optic Nerve."

* * * *

Ophthalmia at a Public School. IN the House of Commons recently, Mr. Robert Pearce asked the President of the Local Government Board whether his attention had been directed to the occurrence of ophthalmia at Rugby School during some years past, and whether he would take steps to put an end to so obvious a danger to the public health. Mr. John Burns promised to communicate with the urban district council on the subject. It is a little difficult, however, to see what the Local Government Board has to do with the alleged outbreak.

* * * *

Jerusalem Ophthalmic Hospital.

ON June 27th last, an influentially attended meeting in support of the British Ophthalmic Hospital at Jerusalem (founded in the year 1882 by the Grand Prior of the Order of the Hospital of St. John of Jerusalem in England) was held at the residence of Earl Egerton of Tatton, St. James's Square, London, His Royal Highness the Duke of Connaught presiding. The institution has forty-two beds for in-patients, and the Committee asked for public support to the modest amount of only £1,500 per annum. A resolution, recognising the splendid work being done by the Hospital among the native population of Palestine and the East, was moved by Sir Charles Warren, seconded by Mr. Israel Zangwill, and supported by Mr. R. Brudenell Carter. The resolution, it is needless to say, was carried.

* * * *

Ophthalmological Society.

THE following were the office-bearers elected for the session 1906-1907 at the annual general meeting of the Ophthalmological Society held on July 13th, 1906:—President: Priestley Smith. Vice-Presidents: F. W. Mott, F.R.S., Robert Doyne (Oxford), John Tweedy, G. Sims Woodhead, M.D. (Cambridge), A. Hill Griffith (Manchester), E. Treacher Collins, W. Adams Frost, George Mackay (Edinburgh). Treasurer: J. B. Lawford. Librarian: W. T. Holmes Spicer. Council: Sydney Stephenson, S. J. Taylor (Norwich), J. Herbert Fisher, A. Freeland Fergus (Glasgow), J. C. Uhthoff (Brighton), Rayner D. Batten, L. Vernon Cargill, Surgeon-General Keogh, M.D., A. S. Percival (Newcastle), J. S. Risien Russell, M.D., Cecil E. Shaw (Belfast), W. G. Sym (Edinburgh). Secretaries: C. Devereux Marshall, and F. E. Batten, M.D.

At the same meeting the Report of the Council of the Society was presented. Attention may be called to one or two of the more interesting features of the document. From it we gather that during the session twenty-three new members have been elected, and seven members have resigned. The members of the Society now number 464. Professor Sattler, of Leipzig, we are glad to note, has consented to deliver the next Bowman Lecture in June, 1907. The Council has accepted an invitation to hold a meeting of the Society in Edinburgh next session. Although this provincial meeting will take the place of one of the ordinary meetings, yet it will not necessarily be held on a Thursday. With regard to the vexed question of amalgamating the London Medical Societies into a kind of Medical Institute, the Council is

for the present unable to make any suggestion to the Society. A committee has been appointed to consider the question of sight-testing by opticians, and to confer with a committee of the British Medical Association with a view to joint action. A memorandum embodying the views of the Ophthalmological Society has been sent to all resident members, in the hope that it may aid them in bringing the matter in proper form under the notice of Members of both Houses of Parliament.

* * * *

Retirement of Mr. W. Adams Frost. THE friends of Mr. W. Adams Frost (and their name is legion) will hear with feelings of regret that he has decided to retire from practice almost immediately. As a preliminary step, he has given up the post of honorary librarian of the Ophthalmological Society. All who use the library recognise the devotedness of Mr. Frost to the work, and will deplore his resignation. With characteristic generosity, he has presented to the Society a beautiful collection of water-colour paintings originally made for his classical atlas on the fundus oculi, as well as a set of lantern-slides of the fundus, no fewer than 128 in number.

* * * *

Ophthalmological Congress at Oxford. A LARGE number of ophthalmic surgeons from all parts of the kingdom journeyed to Oxford on July 22nd and 23rd, in order to take part in the Congress organised by Mr. Robert W. Doyne, the energetic and popular Reader in Ophthalmology in the University of Oxford. Among the foreigners present may be mentioned the names of Professors Dor (Lyons), and H. Snellen (Utrecht), Drs. Darier and Antonelli (Paris), Pergens (Maeyseck), and Patry (Geneva). Most of the visitors were lodged in Keble College, where they occupied the rooms belonging to the undergraduates, now, of course, upon vacation. The proceedings began on Monday, the 23rd, by Professor Gotch's experiments, showing chromatic aberration of the eye; by Dr. Henderson Smith's demonstration of the opsonic index; by the exhibition of Mr. J. T. Graden's microscopical specimens illustrating some phases in comparative ocular embryology; by Mr. S. Mayou's drawings of ocular bacteriology; and by Mr. P. A. Adams' demonstration of recent methods of determining the coagulation-time of the blood in relation to ophthalmology. Dr. A. Darier explained and demonstrated upon patients the method of treating certain diseases of the eye by means of subconjunctival injection. Professor

Dor then read a communication on the treatment of exophthalmic goitre by means of thymus gland, and he was followed by Mr. Edward Nettleship, who took as his subject, "Family diseases of the Eye." Mr. Nettleship's lecture was closely followed by a crowded and appreciative audience. Both of the communications named will appear in due course in the columns of THE OPHTHALMOSCOPE. The afternoon of the 23rd was devoted to the examination of cases of eye disease at the Oxford Eye Hospital, and the early evening to excursions on the Cherwell and to visits to the various colleges of the ancient and picturesque city. The main feature of the following day was a lecture by Mr. George Coats upon "Intra-ocular vascular disease." This also will be published in our columns. A successful and well-organised smoking concert, including exhibitions of fencing and boxing, took place that evening in Keble College. The side attractions of the congress included a splendid assortment of surgical instruments by Messrs. Down Bros., St. Thomas's Street, S.E., the exhibition of new test-types by Messrs. Dixey, of New Bond Street, W., and of an improved and ingenious scotometer, designed by Mr. Doyne. On the 25th a number of the visitors left Oxford by Thames steamer *en route* for London and elsewhere. The congress was so great a social and scientific success that we hear it is to be repeated in 1907.

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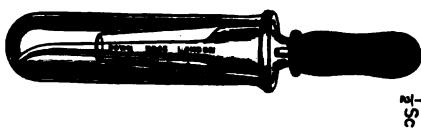
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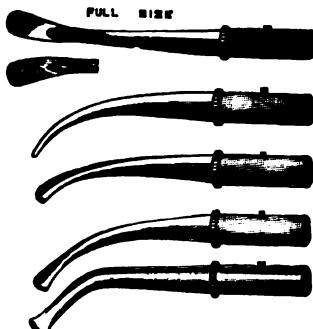
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SOME HEREDITARY DISEASES OF THE EYE.*

BY
EDWARD NETTLESHIP.

The subject of my lecture has not much immediate bearing upon either diagnosis or treatment. We may, no doubt, sometimes be able to manage a case better if we know that a certain patient's kinsfolk have suffered from the same disease that afflicts himself; and on rare occasions the victim of a family disease may ask our opinion as to marriage. But the chief interest of heredity in eye disease lies, like that of all heredity, in

*A Lecture delivered in connection with the Post-Graduate Course of Ophthalmology at Oxford University, 23rd July, 1906.

the light that a study of the subject may throw upon the laws of inheritance; and we, of the medical profession, can often contribute to the elucidation of these problems, even although our researches are hedged in by many limitations from which the experimental biologist is free. It is a trite saying that ophthalmology lends itself to accuracy and completeness of work, and that it sheds much light upon many problems in general medicine and surgery. We find the same in relation to heredity; the eye is, in many respects, particularly suitable for the clinical study of the inheritance of peculiarities, deformities, and disease. This field, although as yet but partially explored, is already much too large to be surveyed in a single lecture, even omitting, as I must do, all reference to the heredity of malformations and arrests, of refractive errors and of variations in the musculature of the eye, and all cases where, as in syphilis, inheritance requires the transmission of living germs of disease. I shall confine myself to giving examples of some of the principal forms of hereditary ophthalmic disease at present known, keeping clear of theories (which I am quite incompetent to discuss), and only prefacing the citation of cases by a few general remarks.

In the first place, when only members of one childship,* i.e., two or more children of the same parents, show the same congenital disease, we may fairly class the case as hereditary if the disease be of a kind that is known to be capable in other instances of affecting two or more generations. This definition will cover the numerous cases in which, owing to incompleteness in the record, only one generation is known to suffer. There seem, however, to be a few instances of eye disease attacking several of a childship, not due at all to inheritance, but to some form of non-infective ill-health in the parents, or one of them. These may quite properly be termed *family* diseases, and should be excluded from the *hereditary* series when they can be recognised.

Next, if we find in the whole of a fully recorded genealogy only a single case of a disease that is well known to be usually transmitted from generation to generation, I suppose we must be ready to admit that this instance may be the first of its kind in that stock. But I am convinced that this conclusion should be deferred as long as possible, for cases occur from time to time where a hereditary disease will disappear for two, three, and even, I believe, more than three generations and then crop out again. Scepticism will be even more necessary when the single case is the offspring of a consanguineous marriage.

Thirdly, as to *mode of inheritance*, two chief types may be

* "Childship" is Dr. E. Stainer's term for "brothers and sisters."

noted. In one, the disease often passes without a break from generation to generation, or may with apparent capriciousness disappear from one generation or more and then reappear, the two sexes being found to suffer about equally if large enough numbers be taken, although in individual families the disease may show a marked preference for either sex over the other. This may be called continuous or sexually indifferent inheritance.—In the second type of inheritance, each affected generation alternates with a sound one, and the disease is confined to males ; but it reaches them through the females. Thus, in the first accessible generation a male is affected ; in the second generation, consisting of his sons and daughters, all will escape ; in the third, the disease will re-appear amongst the sons of the women of generation II ; the sons of the men of generation II, and the daughters of both men and women will escape.* In heredity of this type, we are able to say with something approaching certainty that the son of an affected father and all the descendants of that son will be free ; that, in fact, an affected father cannot transmit the morbid influence unless he have a daughter. This rule, however, is not absolute, for in extensive pedigrees of this type one or more affected females will often be found, or other irregularities of transmission detected. But the general position is well marked, whilst there is not, that I know of, any case of the converse, *viz.*, limitation of an hereditary disease to the female with transmission through the unaffected male ("father's daughter inheritance").

In the last-named type a disease-free branch of the family starts with the son of an affected father. In the other, or sexually indifferent type of inheritance, we also commonly find that an affected stock gives off certain branches that remain entirely free of the disease for generations, probably for ever ; but as both sexes are equally liable, we cannot, as in the sex-selecting type, predict with which individual in the pedigree the immunity will begin.

Fourthly, an hereditary condition may be present at birth, or the disease may then be only potential, remaining latent for weeks, months, or years. In the latter event it is interesting to note that the disease does not always become manifest at the same age in each generation, but may show itself earlier in each succeeding stratum of the family ;—it "anticipates."† It is

*Dr. Herringham uses the apt phrase "*mother's son inheritance*" for this form, and Mr. Bateson calls it "*the Knight's move*."

†For the explanation of this and other terms here used, and for particulars of cases referred to by numbers between brackets, reference may be made to two papers on Hereditary Cataract by the writer in Nos. 3 and 4 of the current volume of the *Roy. Lond. Ophth. Hosp. Reports*.

clear that if this process were carried far enough a generation would be reached in which the disease might begin before birth, and this probably does occur. Thus, in a case given by Hirschberg (case 34†) a little girl was seen, *aet.* 12 months, with double "congenital lamellar" cataract. Her mother stated that her own sight was quite good till she was about 28; a year later, *aet.* 29, Hirschberg found double cataract, complete in one eye and nearly so in the other; her brother, and one of her sisters and their father all had cataract, coming on at about 28—30 years and becoming complete.

Sichel (*fils*) operated (1869—1877) for "congenital" cataract in the second year of life on three successive children of parents who had good eyes; but the father's sister had double juvenile cataract, complete at 18 years, in 1862, and their father (paternal grandfather of the cataractous babies) had been operated on for "double hard cataract" by Sichel (*père*) in 1845, when he must have been more than 18 years old.

Laqueur also makes the interesting general statement that juvenile cataract, developing in early adult life in the parent, is apt to appear as actual congenital cataract in the children. He further remarks on the intensity of the hereditary influence in family cataract, as shown in those instances where all the children of a given parentage are born cataractous.

I do not know whether the opposite process occurs with any regularity, inheritance becoming manifest at a progressively later age in the succeeding generations.

Next:—the more advanced the *âge* at which an hereditary disease commences, the fewer susceptible survivors will there be, and therefore the scantier the proof of heredity. On the other hand, if marked "anticipation" takes place, we should be prepared to find the *number*, if not the *proportion*, of persons affected increase in the descent, unless the defect be a hindrance to marriage or be correlated with early degeneracy and death. I doubt whether data yet exist for deciding this and various other questions.

Some other points may be mentioned, *e.g.*, the connection, if any, between the order of birth of the children and their liability to the inheritance; the relation of the total fecundity, number of early deaths, still-births, and miscarriages to the number who survive and inherit; whether in the sexually indifferent class of cases the disease is transmitted more often *by* the father or the mother, and *to* children of the same sex as the affected parent or the opposite; whether when two widely different hereditary conditions occur in the same person, or in two or more siblings—*e.g.*, hare-lip, or coloboma of iris, with retinitis pigmentosa, or polydactylism with congenital cataract—

† See foot-note on page 495.

both defects are derived from the same parent or one from the mother's side and the other from the father's, as in figure 1.

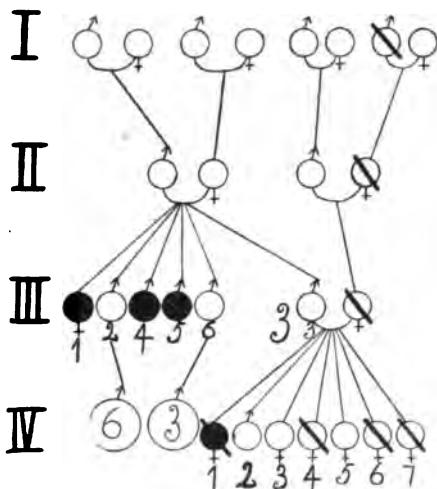


Fig. 1. Hereditary Cataract through father. Digital Malformation through mother. One child (IV. 1) inherits both the defects.

Again :—the probability of inheritance varies considerably, some diseases being more transmissible and some families more susceptible than others. When the descent is easy, as it seems to be in cataract and in congenital colour-blindness, consanguinity of parents does not often appear in the pedigrees. But in certain maladies where the evidence of heredity is less or less easy to obtain, a history of consanguinity of parents is common ; this, *e.g.*, is certainly true for retinitis pigmentosa and for albinism.

In spite of all that has been written on the subject of consanguinity, two views are, I believe, still extant as to why it is often found in the parents of children who suffer from certain congenital diseases and defects ; one school holding that the union of blood-relations, even though they be perfectly healthy, may of itself originate certain degenerations or diseases, which had never occurred in the stock before ; the other view being that when children of apparently normal cousin-parents show a disease of hereditary type, we are to suppose that both parents inherited the taint from a common ancestor, but in so slight a degree that neither of them singly would have been able to transmit it. If the latter view be correct, the essential thing is not that the parents are blood-relations, but that they are both tainted, although only in a slight degree ; and it should, in fact, be possible to discover instances in which parents, quite unrelated

by blood, but each inheriting from different sources a slight tendency to the same disease, had been able to transmit the malady, although perhaps neither of them would have been able to do so had the other one been normal.

The problem can be solved only by the diligent collection of evidence. In the meantime, it seems to me that the burden of proof rests on those who hold that consanguinity can of itself originate disease. We find, in fact, that :—(1) the pedigrees relied upon to prove the evil influence of consanguinity as such often extend to two generations only, whilst in larger pedigrees evidence of heredity is sometimes discovered in addition. For instance, Rousseau records the case of a child of 12 with retinitis pigmentosa whose parents were uncle and niece; they and their respective parents (grandparents of the patient) were examined, and found to have good eyes. Up to this point, therefore, the close consanguinity of the parents might be plausibly assigned as the cause. But a blind sister of the patient's mother was now examined, and found to have advanced retinitis pigmentosa, proving that the disease existed in the family before! (2) In retinitis pigmentosa, in which consanguinity is very frequent and has, largely owing to the teaching of Liebreich, been credited with an important share in causation, some of the longest pedigrees show little or none of it, as we shall see later on. (3) I believe that cases in which a family disease affects only the members of a single childship, and that childship the offspring of blood-relations, are but rarely met with in *fully recorded pedigrees*. I have one such example, in which we might, with some plausibility, assume that cousin-marriage had *per se* produced the disease. In this case, two brothers suffer from congenital stationary night-blindness. They are in the fourth generation. Their parents were first cousins. There were no other cases of night-blindness and no other marriage between cousins in their own or the three preceding generations. This pedigree contains 88 persons. (4) Enquiries carried out in certain settlements so situated on a sea coast as to be almost isolated, settlements in which consanguineous marriages are known to have been very frequent, appear to show that, if the consanguineous parents are healthy, no degeneracies occur in their descendants, even in the course of many generations. It is possible, however, that sufficient allowance has not been made for the severe natural selection that must accompany the rigorous life of such communities.

EXAMPLES OF HEREDITARY EYE DISEASE.

- I. We meet with families in which several diseases of the eye occur, one member having glaucoma, another cataract, a third

detachment of the retina or "gouty inflammation." No doubt some of these occurrences may be merely coincidences, but probably others indicate an hereditary imperfection of the whole eye, or of the whole uveal tract, and may be compared to what occurs in the inheritance of affections of the nervous system. I will not trouble you with examples.

Cataract in its various forms, either actual or potential, is one of the most commonly transmissible eye affections.

A good genealogy of senile cataract with marked "anticipation" in the younger generations has been published by Dr. John Green, of St. Louis.* Though far from complete, it is in some respects the best I know of. Twenty-one cases are shown amongst 64 persons, 7 males out of 27, 14 females out of 37. In generations I, II, and III, 7 persons, of whom 6 were women, became cataractic "late in life." One of these women (III—12) had 9 children (gen. IV), of whom 5 were affected with cataract between the 40th and 55th year of age. Gen. V consists of the 37 children born to gen. IV, 6 of these developed cataract between 20 and 30. Only 7 members of gen. VII were known at the date of publication (1890), but of these, 3 were known to have had cataract between the ages of 6 and 9, and been treated by "needling" with good result.

In such long pedigrees we are generally obliged to accept for what it is worth the hearsay evidence of disease in the two or three earlier generations. Such tradition is, I am sure, often worth more than one would at first expect, because the symptoms, being the same in all, are expected and even sought for, and members of the later generations often make careful enquiries. In the above case the history was obtained from or through III—12, who was seen by Dr. John Green when she was 83 with cataract of seven or eight years' standing, complete in one eye, partial in the other.

I will ask you to take for granted that in the other cases of heredity that I shall mention, the evidence was sifted and chosen as carefully as possible.

The next case (one of Mr. J. B. Lawford's†), although complete only in the direct male line, is valuable because authentic. I had some disease called cataract about 1730. His eldest son (II), a colonel, fought at the Battle of Culloden in 1745, fled to France and worked as a bricklayer near Paris for the rest of his life, and was operated on there for cataract when he was from 60 to 65 years old (probably in Daviel's day). The history of his eldest son (III) is not known, but IV—1, the eldest son of III, had

* See the paper on Hereditary Cataract, *loc. cit.*, Fig. 46.

† Nettleship, *loc. cit.*, Fig. 5a.

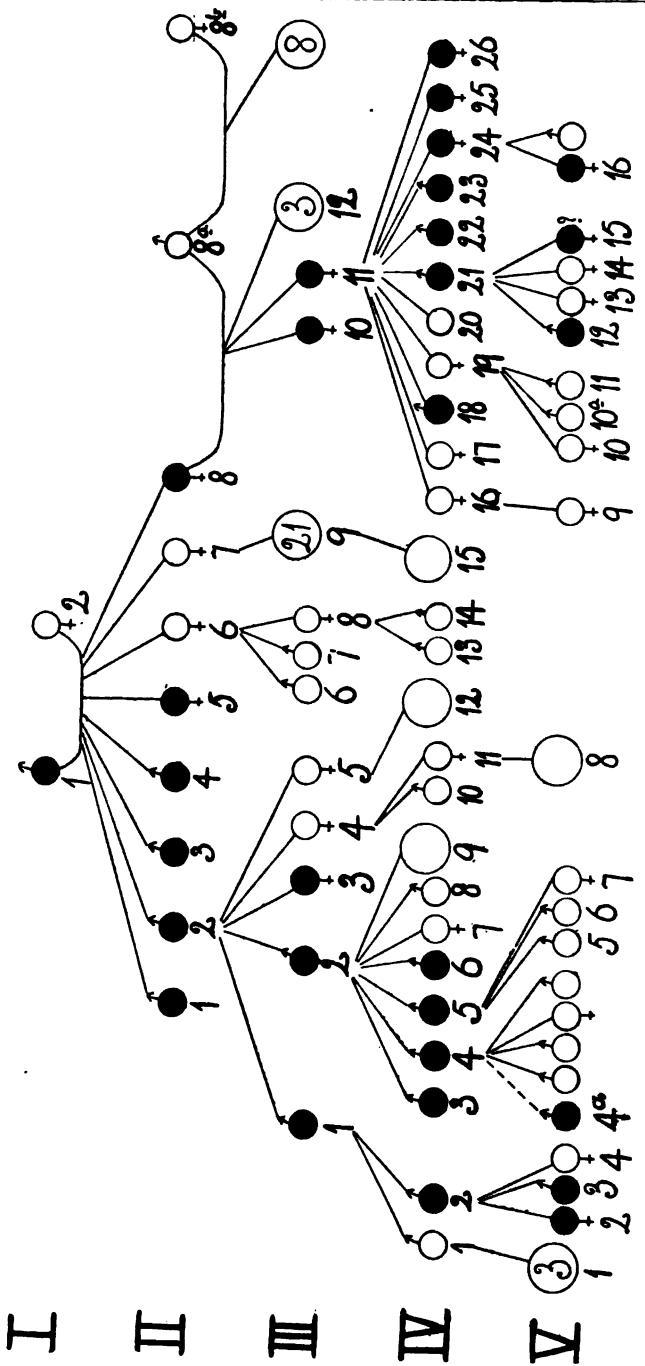


Fig. 2.—Congenital Cataract (Coraliform)

a successful business as a florist near London, was operated on for cataract at about 60, and lived to be 93. Of the four children of IV—1, the three eldest (V—1, 2, 3) sons were all operated on for cataract in London soon after the age of 50, and all lived for many years after, dying only quite recently ; the fourth, a daughter, emigrated when young, and was lost sight of. V—1 had only one living child, a son (VI—1), who was operated upon at the age of 55 by Mr. Lawford in 1905. No other cases are known in gen. VI. Here the cataract appeared at about the same age in every case, and all the six that were operated upon are known to have done well.

The number of cases recorded in a genealogy of senile cataract must be taken as the minimum, for unless the entire stock can be examined the majority of those in whom the disease is incipient will be missed.

In congenital cataracts this difficulty is much less likely to occur, although it was met with in the case I shall mention next. Some varieties of congenital cataract are very hereditary, and, as a rule, each variety is propagated with extraordinary precision.

I know no more beautiful example than that of the Coppock cases, several of which have been known to Mr. R. W. Doyne at the Oxford Eye Hospital for many years, whilst many others have been brought to light by Mr. F. Menteith Ogilvie during the last six months by a most laborious routine examination of the whole family. The pedigree of this family drawn up by Mr. Ogilvie was shown at the Ophthalmological Society in June last. The cataract takes the form of a small disc of opacity (or to use a better term, intransparency, for the opacity is never complete) between the nucleus and the posterior pole ; it has the circular, sharply defined outline, axial situation, and general appearance of a small lamellar cataract, but shows no traces of a second layer, and is always situated behind the nucleus. It has been seen in children of 10 years and in an old woman of 82, and is quite stationary. It is always bilateral, and always identical in size, density, and appearance in the two eyes of the same patient, but slight variations can be made out in some of the finer details between one case and another. The cataract is barely large enough to block the ordinary pupil of, say, 4 mm.; and its density is so slight that it interferes but little with sight. The subjects of this peculiarity are perfectly normal in every other way, and their teeth remarkably good.

The genealogy of another form of congenital and almost stationary cataract as constant as, although much less precise in form than, the last, is shown in Fig. 2* (coraliform or axial cataract).

**Loc. cit.* Fig. 28 with subsequent additions in generation V.

The next case is that of a family in which nine members in three generations have, or have had, typical ordinary lamellar cataracts.* The case was given to me by Mr. J. Herbert Fisher, and for many of the notes I have to thank Mr. A. H. P. Dawnay. I have seen several of the affected and unaffected members, and as all were operated upon at Moorfields, access to their in-patient notes has been easy. The first (I—1) was operated upon at the age of 10 by the late Sir William (then Mr.) Bowman in 1847, and is still living; the last two not as yet dealt with, children of II—2, are now in Mr. Fisher's hands. I may mention that the incisor teeth in this family do not show the deficiency of enamel so commonly associated with lamellar cataract, although several of the first molars are so affected. Nor was there much history of fits in infancy. I have also to thank Dr. Wm. G. Sym, of Edinburgh and Sir Anderson Critchett for two very good pedigrees of hereditary lamellar cataract. In Mr. Sym's case, as in Mr. Fisher's, the teeth were *not* defective in enamel.

Another genealogy is that of a Jewish family with a form of partial, almost stationary, anterior and posterior cortical cataract of stellate pattern.† In some of the older patients senile cataract was superadded. The youngest subject was aged 4 years. The case was recorded by Zirm and Bergmeister, of Vienna, in 1892, and Prof. Bergmeister has lately sent me some additional particulars by letter.

Retinitis pigmentosa is the family eye disease around which the contest between the consanguinists and hereditarians has been hottest. The literature is too large to be dealt with here, but we may confidently assert that both consanguinity of parents and inheritance of the disease from ancestors are of frequent occurrence. Examples of inheritance going back for a century and more are found in the literature of our own and various foreign countries, and I am able to show the pedigree of a case of my own in which the history is known in 199 (say 200) persons in six generations. At least 38 of these were or are night-blind from early life, becoming worse and usually quite blind about middle life. I have examined eight of these and found typical retinitis pigmentosa in all; some others, (I do not know how many) have been seen elsewhere. The living head of the family, now *aet.* 66 and blind for years, is a very intelligent tradesman, and has taken great pains to ascertain the facts. There were two consanguineous marriages, the mother in each being affected, the father free; just one half of the children of each of these marriages was affected. It is, however, important

**Loc. cit.* Case 108, Fig. 50.

†*Loc. cit.* Case 112, Fig. 54.

to note (*a*) that the proportion of affected to normal was exactly the same (one half) in four other childships where the parents were not related, and (*b*) that one of the mothers, whose first husband was her cousin, married a second time to a man not related, and bore at least one affected child to him. None of the members of this genealogy have shown any other degenerations or hereditary defects whatever, and several even of those who had the disease lived to be very old.

Mr. Simeon Snell has published a pedigree of between 70 and 80 persons in five generations, of whom 29 had typical retinitis pigmentosa, without any known consanguineous marriages. I am not aware of any extensive pedigree in which consanguinity figures alone, without heredity.

There are some other forms of night-blindness with ophthalmoscopic changes differing in certain respects from typical retinitis pigmentosa, *e.g.*, retinitis punctata albescens, which are known to be family diseases, but the cases are rare and no large material has yet been collected. (See also Cutler, Colman, W. Knapp's *Archives*, XXIV, 312, 1895, for another variety—Fuchs's *Atrophia Gyrata Choroidea et Retinae*.)

Then, there is another malady which we know to be remarkably hereditary—**congenital stationary night-blindness** without any ophthalmoscopic changes. In some examples of this group all who are struck with the night-blindness are also myopic, and are males; but in others, including the most recent case by Mr. Walter W. Sinclair* (1905), there was no myopia, and both sexes suffered. The former variety, of which good cases were published by Pflüger, of Berne, in 1883, Stanford Morton in 1893, Colman W. Cutler in 1885, Sédan (of Toulon) in 1885, and Ammann in 1898, is illustrated in Fig. 4† from a case I recorded in 1887. It shows the condition absolutely limited to the male sex, but descending through the female in 7 out of 9 transmissions. Pagenstecher's case (1878) was probably one of this sort, but myopia was proved in only one of the affected members.

In Sinclair's case, 5 of the 15 affected were females, and although the disease was usually carried down by a female, the carrier was invariably affected; none were myopic.

The well-known pedigree published by Cunier in 1838, in which 83 members of a genealogy containing 628 persons and extending to seven generations, suffered from a form of night-blindness dating from birth, has often been referred to, but the true nature of the disease has only just now been demonstrated. Prof. H. Truc, of Montpellier, has, within the last three weeks,

**Roy. Lond. Oph. Hosp. Repts.*, Vol. XI, p. 370.

†Sinclair, *Ophthalmic Review*, Vol. xxiv., p. 255 (September, 1905).

examined several night-blind descendants of the stock originally investigated by Cunier, and finds them normal in every respect except the night-blindness—emmetropic and with no trace of retinal pigmentation. Cunier's case may, therefore, now with confidence be classed as congenital stationary night-blindness and not as retinitis pigmentosa.*

The next disease I will mention is **Leber's hereditary optic atrophy**, or, strictly, **hereditary axial neuritis**, or, if the most recent views placing the origin of the toxic amblyopias in the retina be adopted, **hereditary central retinitis**, for the early clinical features of Leber's disease are so like those of tobacco amblyopia that the primary pathological change is probably the same in both. In some pedigrees of this malady, all those affected are males, and transmission takes place only through females. In others, the disease attacks also a fair proportion of the females, and may be passed on by either sex, whether the transmitters are affected or not. Fig. 3 from (Norris, 1884†) illustrates these

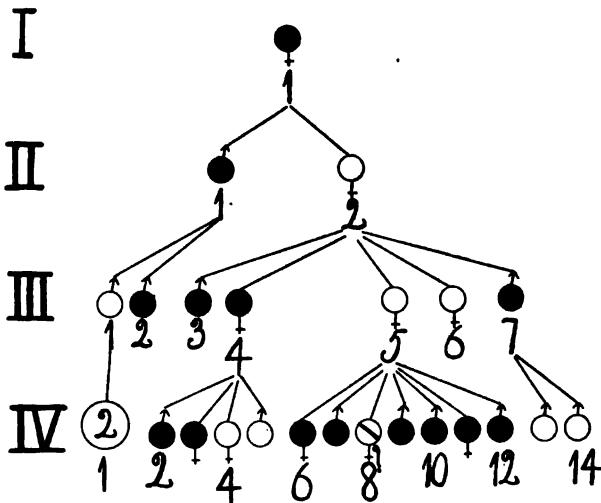


Fig. 3.—Leber's Hereditary Optic Atrophy (Norris).

varieties. Another important pedigree has been recorded by Gould. Both might be paralleled by published cases of haemophilia and colour-blindness, and by various cases of hereditary muscular atrophy, e.g., one published by Herringham, in

*A fuller account of Prof. Truc's investigations, which have been most kindly undertaken in consequence of a suggestion made by the writer some months ago, will be published as soon as they are completed.

†Norris, *Trans. Amer. Ophth. Soc.*, Vol. 3, p. 673 (1884).

Brain for 1888. I have many small pedigrees of Leber's disease, but none approaching in extent the two above referred to.

In Leber's disease, taking all cases together, the proportion of affected males to affected females seems from Habershon's paper (1888) to be about as 6 to 1; males, 130; females, 19 or 20.

The celebrated Lecomte case, published in 1809 in America, which has been much quoted at second hand in connection with heredity, may have been Leber's disease, but may, with equal probability, have been juvenile glaucoma, perhaps complicating buphthalmos or myopia. After looking at the original account given in the *Baltimore Medical and Physical Recorder*, Vol. I, No. 4., p. 273, 1809, I find it impossible to make a diagnosis. Thirty-seven individuals in three generations were affected by a form of blindness that began at about the age of 15 and was complete at about 22. The blindness is stated to have been absolute in all cases. Nothing is said of night-blindness; many were males, but some females. The first-hand particulars were collected by a clergyman, and it is not clear that any of the sufferers were medically examined.

I have seen several instances of family liability to disease of the optic nerve differing somewhat from typical Leber's disease, e.g.:—

1. In 1896, a single lady of 29, had acute characteristic retrobulbar neuritis in the right and recovered well. In 1899, her younger but widowed sister, aged 26, had the same thing also in the right eye (38, 232 and 51, 212).

2. An old gentleman's sight failed in both eyes slowly with central scotoma down to 14 J. when he was 76, and remained stationary. I saw him two years later (1900). His case had been treated as tobacco amblyopia, but no improvement had followed abstinence from tobacco. His daughter's right eye failed when she was 23 and recovered, and when I saw her a year later (1899), the disc was pale. She came to me for similar but recent failure of the left eye which only partially recovered from retrobulbar neuritis (52, 146 and 49, 62).

3. Retrobulbar neuritis in one eye of a woman, aged 38, recovering well; failure of both resembling tobacco amblyopia in a brother; history of epilepsy in their mother (*Ophthalmic Hospital Reports*, XV, 1, p. 5, Case 122).

4. Retrobulbar neuritis in one eye and six months later in the other, both recovering with pale discs; subsequent attacks in both eyes; a form of spinal sclerosis; patient, a young lady, 21—31. Disease of optic nerves and a form of spinal sclerosis in her brother (*Ophthalmic Hospital Reports*, XV, 1, p. 19).

5. A gentleman of 50 had diplopia diagnosed as due to paralysis of right inferior rectus in 1881; it recovered or

improved. Six months later (May, 1882) the right eye failed with central scotoma and did not recover; the disc became very pale. In January of the year 1902 his daughter consulted Mr. W. T. Holmes Spicer for acute retrobulbar neuritis of the left eye. His son, a doctor, has been to me for attacks of iritis that I have no doubt are gouty (*Trans. Ophth. Soc.*, IV, 210, Case 17; Son 52, 70).

6. I remember a case of double optic atrophy (? tabetic) in a man at St. Thomas's Hospital; and of subsequent tobacco amblyopia, that recovered, in his son.

Of colour-blindness, which is scarcely to be counted a disease, and is probably not an affection of the eye, small pedigrees are easy to get and probably large ones have been published more frequently than I know of. The earliest I have found (in a very partial search), which is also one of the best, was recorded by Dr. Pliny Earl in the *American Journal of Medical Sciences*, 1845, p. 346. It is typical except that two females were affected in a very extensive pedigree.

I cannot now do more than mention the rare but well-recognised family condition in which congenital stationary central amblyopia is combined with dislike of bright light and blindness for all colours. About 50 published cases have been collected by Grunert (1903), some of them having been published in this country.

(*To be concluded.*)

ON A FORM OF AMBLYOPIA IN YOUNG CHILDREN CONSEQUENT UPON INHERITED SYPHILIS.

BY
SYDNEY STEPHENSON.

Among the more difficult cases that fall under the notice of the ophthalmic surgeon are those of amblyopia in young children. In addition to the defective history usually forthcoming from parents of the hospital class, there are the innate difficulties of ophthalmoscopic examination in children of tender age, who so far from aiding our investigation, do everything they can to impede it. Then, there is the uncertainty that must always surround our attempt to estimate the degree of sight possessed by any given baby. In short, the diagnosis of few disorders calls for more patience, knowledge, and skill on the part of the surgeon than that of defective sight in babies.

The most important groups of amaurosis at present recognized

in infants are four in number: first, acute cerebral amaurosis of infancy (Gay); second, post-convulsive amaurosis (Ashby and Stephenson); third, amaurotic family idiocy (Tay and Sachs); and, fourth, post-meningitic amaurosis or amblyopia, due to organic changes in the optic papilla, and, presumably, in the optic nerve also.

In addition to the foregoing, some experience of the eye diseases of children has familiarised me with a fifth group, where a form of blindness, partial or complete, is directly caused by the action of the syphilitic virus. The condition is due immediately to opacities in the vitreous humour, and remotely to a specific inflammation of the choroid or of the retina or of both those structures. The condition, of course, must be familiar to many besides myself. Indeed, "specific hyalitis" has been mentioned by Mr. Jonathan Hutchinson in his memoir "*On certain diseases of the Eye and Ear consequent on Inherited Syphilis*" (1863), and by Mr. E. Nettleship in a communication upon "Some forms of congenital and infantile Amblyopia," published in the *Royal London Ophthalmic Hospital Reports* for the year 1887.

At the same time I may be pardoned for publishing reports of some of my own cases, since, in my experience, the condition is not an altogether uncommon cause of defective sight in infants, and is one that should be diagnosed early, in order that specific remedies may be given a fair chance of curing the disorder.

Brief details of my cases follow:—

CASE No. 1.—*Amblyopia in an infant of seven months, who died twelve days after she was first seen, presumably from Congenital Syphilis.*

Dorothy S——, aged seven months, came under my care at the Evelina Hospital on July 19th, 1901, on account of defective sight. The mother did not know whether the baby had ever seen well, but she was certain that during the last month the sight had become worse, so that the child was now unable to recognise her mother, a thing that she could do before. Dorothy was the third child, and it was significant, to my mind, that the second child, now aged 18 months, had suffered in the same way, but was now recovering her sight. Upon examination, Dorothy S—— was noticed to "snuffle," to be wasted, and to have a condyloma in the right groin. The child's eyes rolled about aimlessly, and she took not the least notice of a bright object, such as a gold watch. The pupils (as in most infants) responded imperfectly to atropine, but no view of the details of the fundus could be obtained with the ophthalmoscope. A week later, however, opacities were found, especially in the anterior part of the vitreous, and the optic disc could be dimly recognised. The baby died on July 31st, 1901.

CASE NO. 2.—*Amblyopia in a syphilitic infant of eleven months. Considerable improvement under specific treatment.*

Leonard S——, aged 11 months, was brought to hospital on March 7th, 1902, with the history that he had never seen well. Although born at term, yet he was a small baby. He "snuffled" for several months, and did not thrive. Bottle fed. The mother had been married for 13 years; no miscarriages. Upon examination, I found a tolerably well-nourished baby, the bridge of whose nose was markedly sunken ("saddle-bridge"). He followed the flash of the ophthalmoscopic mirror quickly and correctly. Pupils equal but not responsive to light. The eyes (examined under chloroform) contained vitreous opacities, so numerous as to obscure all deeper details. Under treatment with mercury and chalk, one grain twice a day, the child showed much improvement. On April 25th he was stated "to notice everything." His pupils were then responsive to light, and the vitreous opacities less marked. He had become good tempered, and put on flesh.

CASE NO. 3.—*Amblyopia in a wasted infant of three months, associated with ptosis and spasmodic contraction of the muscles of one eye.*

Ellen C——, a wasted, "snuffling" baby of three months, brought on January 26th, 1904, because she was said "to take no notice of anything." She was the sixth child in the family, three members of which had died from "wasting." Spasmodic ptosis of the left upper lid, with occasional deviation of the left eye down and out. The eyes were difficult to examine, but the right optic disc—the only one of which a good view could be obtained—was greyish-white, and opacities were present in the vitreous humour of each eye.

CASE NO. 4.—*Amblyopia of fluctuating type in an infant of two months, who had suffered from ophthalmia neonatorum. Considerable improvement under mercurial treatment.*

Edwin A——, aged two months, brought January 9th, 1906, with the statement that both eyes had become inflamed on the second day after birth, and that since then the baby has taken little notice of things about him. On examination, there was no discharge from the conjunctiva, the condition of which was tolerably good. A small central macula was present on the left cornea. The pupils reacted but slightly to light. The mirror test was inconclusive, the patient now taking notice of the ophthalmoscopic flash, and again remaining impervious to the light stimulus. No details of the fundus could be recognised, owing to fine vitreous opacities, lying chiefly in the anterior part of the humour. The baby was treated with mercury with chalk (gr. 1 *ter die*) from January 29th to March 24th, and a note

made upon the latter date stated that the mirror flash was well followed by the patient. The evidence of syphilis in this case was not so conclusive as could have been wished, but the child "snuffled" and was wasted. It would be unwise to lay any diagnostic stress upon the craniotabes that was present, since there is still a difference of opinion among competent authorities as to the precise signification of that sign.

CASE NO. 5.—*Dull and fluctuating sight, due to vitreous opacities and choroiditis, in a child of two years, who had suffered from symptoms of congenital syphilis. Improvement under prolonged treatment by mercury.*

Doris O—, two years, was brought to hospital August 22nd, 1905, on account of her sight, stated always to have been defective. It had been noticed that vision was worse in the mornings than at other times. The eyes had never been inflamed. She was the fifth child in the family, and there had been no stillbirths or miscarriages. When the baby was about three months of age, she wasted, began to look old had an eruption on her skin, and presented bleeding ulcerations upon her lips and buttocks. She recovered after about three months' treatment by a medical man. Upon examination, the child was found to walk and talk. Her head was rather small. Her eyes were steady, and her pupils equal and responsive to light. She saw and followed with her eyes the flash of the ophthalmoscopic mirror in the darkened room. The right eye, as tested by the corneal reflex, had a slight convergent squint. There were fine vitreous opacities in each eye, concealing to some extent the view of the fundus. But, on careful examination, faint but extensive choroidal changes could be recognised. Pigmentation, as usual in young children, was not a marked feature of the choroiditis. Under six months' treatment with mercury and chalk (grs. 2 to 5 per diem) the vitreous opacities disappeared, and the child's sight became much sharper. The choroiditic changes, moreover, were apparently brought to a standstill.

CASE NO. 6.—*Amblyopia in a young child, whose father admitted syphilis twenty years before. Nervous symptoms and loss of sight, the latter due to vitreous opacities, disseminated areolar choroiditis, and choroiditic atrophy of the optic disc. Partial recovery under mercurial treatment.*

Frederick H—, aged 2½ years, brought to the Evelina Hospital on November 14th, 1905, with the following statement: the child had no definite illness until seven weeks ago, when he complained of pains in his chest, began to waste, went "off his feet," and lost consciousness for two days. Upon recovery, it was found that he had lost the use of his left hand and leg, and about a week later that he had lost his sight, which had

previously been good. The father, who had been married thirteen or fourteen years, had suffered from syphilis seven or eight years before marriage. The first child, a boy, had died at six years from diphtheria; next, came a miscarriage; and, lastly, the patient was born. Upon examination, the child took no notice of a light. The left eye tended to diverge. The vitreous was cloudy; the optic discs were badly defined; and there were numerous patches of choroiditis in each fundus. Mercury with chalk (grs. 3 to 5 *per diem*) had acted so well that on April 10th, 1906—that is, after about seven months' treatment—the child noticed the mirror-flash, although not always readily. The fundi showed slightly pigmented areas of choroiditis; the discs were on the "pale side"; but no vitreous opacities could be recognised.

Remarks.—The condition to which attention is drawn clearly represents a secondary manifestation of congenital syphilis. It corresponds closely with the retinitis or choroiditis or retino-choroiditis sometimes observed in acquired syphilis from, say, six months to two years after the initial sclerosis, and just as those diseases are often complicated with vitreous opacities, so is the affection under discussion. In both conditions, congenital and acquired, the eyes may be involved to an unequal degree. My point about infantile amblyopia is that in babies the "hyalitis" forms the leading ophthalmoscopic feature of the case, while the choroiditic or retinitic changes may be relatively insignificant, or may be altogether concealed by the cloudy vitreous humour.

In my opinion, in babies a cloudy vitreous humour means one thing only, *viz.*, the existence of congenital syphilis. The diagnosis of vitreous opacities, however, may be simple or the reverse. Fluctuation in sight (cases Nos. 4 and 5) is suggestive. It is seldom, according to my experience, that one sees actual "floaters" with the ophthalmoscope. The condition generally takes the form of tiny, dust-like opacities, the ophthalmoscopic effect of which is to veil or actually to conceal the details of the fundus. The latter may be seen for the first time only after the vitreous opacities have been more or less cleared by the lapse of time or by the administration of mercurials.

In certain cases (Nos. 2, 4, 5, and 6) the hazy vitreous clears quickly to mercury. The fundus may then show few if any changes of a serious nature. This particular sequence appears to represent a primary syphilitic retinitis (or, possibly, a cyclitis), such as may occur six to eighteen months after a chancre. Some of the other cases are strictly analogous to the much commoner disseminated choroiditis, seen one to three years after the acquired disorder. In such patients the optic papilla

(case No. 6) may acquire the dirty yellowish-white hue to which the name of "choroiditic atrophy" has been applied by Sir William Gowers.

It is an interesting and remarkable feature that none of my cases of amblyopia have shown any evidences, past or present, of iritis. Yet that disease was recognised and described by William Lawrence in 1830* (*A Treatise on the Venereal Diseases of the Eye*, p. 306) in a child of sixteen months, whose mother was also under treatment for constitutional syphilis. Only one of the baby's eyes was affected, and the inflammatory symptoms were mild. Lawrence speaks of a second case in an infant associated with wasting and eruptions and terminating in blindness (*loco citato*, p. 164 and *A Treatise on the Diseases of the Eye*, 1844, p. 426). William Mackenzie spoke of iritis as "not unfrequently the consequence of congenital syphilis" (*Practical Treatise on the Diseases of the Eye*, 1854, p. 546). Mr. Jonathan Hutchinson (*Syphilis*, London, 1889, p. 239), who described a series of 23 cases amongst infants aged from six weeks to sixteen months, characterised this form of iritis as "amongst the rarest of the symptoms of hereditary syphilis." The disease, indeed, must be exceedingly rare, for I cannot recall in my own work having recognised a single case. I agree with Dr. George Carpenter, who in his remarkable monograph on *Syphilis of Children in Everyday Practice* (1901, p. 83) states that he has never met with a case, although as a matter of routine he has examined the eyes of hundreds of syphilitic infants. Henoch, also, has never seen a case; and the experience of those writers appears to be borne out by that of other workers in the field of children's diseases.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

THE DEVELOPMENT OF THE CRYSTALLINE LENS.

BY

J. T. GRADON, M.A.

ST. JOHN'S COLLEGE, OXFORD.

In connection with the recent Oxford Ophthalmological Congress, the writer gave demonstrations of his researches in comparative ocular embryology, but chiefly on two changes

*An earlier writer, Thomas Hewson (*Observations on the Ophthalmia accompanying the secondary forms of Lues Venerea*, 1824) described a case of mild iritis in a boy, 6 years of age, who had suffered from infantile syphilis, and who presented "painful enlargements in the centre of both tibiæ" (p. 107, *loco citato*). The symptoms yielded entirely to mercurial treatment.

taking place in the later developmental stages in the lenses of eyes that are normally adjusted for distant vision when at rest, and the absence of one of these changes and a variation of the other in the lenses of eyes that are normally adjusted for near vision when at rest.

These changes are, in eyes that are adjusted for distant vision, e.g., those of the mouse, the chick, and the frog :—

1. The formation of a lymph space round the equator of the lens, between the anterior and hind walls, which, contrary to the accepted view, never fuse during development, though the forward growth of the latter speedily obliterates the central cavity;

2. A coincident flattening of the anterior surface of the lens by traction, which is produced by developmental increase in the equatorial diameter of the eye.

Whilst in eyes that are adjusted for near vision, e.g., those of the trout and the dog-fish, no flattening of the lens takes place, and the lymph space is formed over the anterior third of the fully extended hind wall, between it and the anterior wall with its investing capsule. The writer holds, and it was generally admitted by the surgeons present, that the two following facts lend support to the theory of accommodation put forward by Helmholtz, *viz.* : the fact that during development a flattening of the anterior surface of the lens takes place in eyes that are normally adjusted for distant vision when at rest, combined with the fact that during the same process no flattening takes place in the lenses of eyes that are normally adjusted for near vision when at rest, so that the static form of the lens in these eyes is approximately spherical, and it must of necessity become less convex by traction produced by its accommodative apparatus to obtain distinct distant vision.

With regard to the lymph space that forms round the equator of the lens—in the mouse between birth and the seventh day after, in the chick on the eighth day of incubation, and in the frog when it is about 11·5 mm. in body length and has just lost its tail—the author was unanimously supported in his belief that excessive accommodation, especially under hypermetropic conditions, would mean partial or complete closure of this space and consequent and proportionate lack of nutrition for the very large number of cells belonging to the outer zone of the hind wall that terminate anteriorly in it. This seems to explain why Schön* and others have found that cataract, heretofore distinguished as "senile," but which Schön, in consequence of his investigations, wishes to be known as "simplex," always begins as equatorial, can frequently be found in its incipiency in young

* Dr. Schön, "The Cause of Senile Cataract," *Archives of Ophthalmology*, 1889, Vol. 18, p. 322.

people of 20 to 30 years of age, and that three-fourths of the total number of cataractous eyes are hypermetropic or astigmatic.

Moreover, it is important to remember in this connection that the lens of the trout, for example, which in a condition of rest never has the lymph space, between the anterior and hind walls, open round the equator, is provided with a vascular loop that rises up from the choroid fissure and comes into direct contact with the capsule round the posterior third of the lens.

THE OPSONIC INDEX*

BY

J. HENDERSON SMITH, M.B., Ch.B.

"Opsonins" is a name given by Professor Wright to substances in the blood, which, acting upon bacteria, render these bacteria more palatable or attractive to the leucocytes. They are a measure of the resistance of the organism to the bacteria in question, and their amount may be estimated. By an ingenious technique, the average number of bacteria taken up by a single normal leucocyte in normal plasma is determined, and similarly the average number taken up by one normal leucocyte in the presence of the patient's plasma instead of normal plasma. The quotient obtained by dividing the latter number by the former is the "*opsonic index*," and it tells whether the resisting power of the patient is above or below normal. Opsonins are produced in the blood in response to stimulus. In the case of localised bacterial infections, this stimulus is wanting, and it is supplied by injecting small doses of sterilised cultures of the particular bacterium. The result is a rise in the opsonic index, *i.e.*, an increase in the resisting power of the patient. In the case of more generalised bacterial invasions, the stimulus is supplied from the main site of the disease by irregular invasions of the general system. In these cases, the attempt is made to eliminate, so far as possible, these irregular invasions by rest and quiet and other means, and to replace them by regulated injections of sterilized cultures. In every case, and most especially in the latter class of case, the dosage in time and quantity must be regulated entirely by the findings on repeated examinations of the index. For a most frequent result of an injection, or auto-infection, is a temporary fall in the resisting power. This fall varies in extent and duration, which cannot be estimated by clinical symptoms or other means. If an injection is given during

*Communication based upon a demonstration given during the Oxford Ophthalmological Congress, July, 1906.

such a negative phase, the resistance will be still further lowered and irreparable damage may be done. The only guide to the injections is that of the index. The clinical results of the method, originated by Professor Wright, have been most encouraging, including every kind of local infection where the bacteria can be opsonised.

C U R R E N T L I T E R A T U R E.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—ANATOMY, HISTOLOGY, AND DEVELOPMENT.

- (1) Colombo, G.—The protoplasmic granules of the corneal epithelium during the cicatrical healing of wounds. (I Granuli protoplasmatici dell'épitelio corneale studiati durante il processo di riparazione delle ferite.) *Annali di Ottalmologia*, Vol. XXXIII, Fasc. 3-4, p. 230.
- (2) Münch, K.—On the muscular nature of the network of stroma cells of the uvea. (Ueber die muskulöse Natur des Stromazellnetzes der Uvea.) *Zeitschrift für Augenheilkunde*, Oktober, 1904.
- (3) Collins, E. Treacher.—On the development of the accommodative power of the human lens. *Royal Lond. Ophth. Hospital Reports*, Vol. XVI, Part 2.
- (4) Coats, George.—The structure of the membrane of Bruch, and its relation to the formation of colloid excrescences. *Royal London Ophthalmic Hospital Reports*, Vol. XVI, Part 2.
- (5) Enslin.—The histology of the human caruncle. (Die Histologie der Caruncula lacrymalis des Menschen.) *Archiv für Augenheilkunde*, Bd. LI, p. 253, 1905.
- (6) Peschel, Max.—The structureless eye membranes under the ultra-microscope. (Die structurlosen Augenmembranen unter einem Ultramikroskop.) v. Graefe's *Archiv für Ophthalmologie*. Bd. 60, 3 Heft. Juli, 1905.
- (7) Münch, K.—The innervation of the stroma cells of the iris. (Ueber die Innervation der Stromazellen der Iris.) *Zeitschr. f. Augenheilkunde*, Juli, 1905.

(8) **Cosse.**—The muscular and aponeurotic apparatus of the eye and the orbit according to the researches of Professor Motais. (*L'appareil musculaire et aponevrotique de l'œil et de l'orbite selon les travaux du Prof. Motais.*) *L'Ophthalmologie Provinciale*, T. II, pp. 127, 145, novembre et décembre, 1905.

(2) The conclusions arrived at in Münch's carefully worked-out paper are: 1st—That the more or less pigmented cells of the stroma-net of the uvea are of a muscular nature; 2nd—This muscle-cell stroma is of a relatively highly organized nature, and must possess a high grade of contractility; 3rd—Since this network is most marked in the neighbourhood of the blood vessels, its principal action is vaso-motor. This is especially the case as regards the iris, as there the vessels have no definite muscular coat.

A. LEVY.

(3) The accommodative power of the human lens was proved by Helmholtz to be due to its elastic fibres being maintained in a state of tension, the relaxation of which brought about an increase of convexity of its outer surface. Collins's paper shows how this state of tension is developed.

By carefully tracing the development of the ciliary body and lens it is shown "that different portions of the ciliary body are in contact with the sides of the lens at different times, and that adhesions which form between them must originate at different times." The ciliary body after it has contracted these adhesions gets further removed from the lens as the eye grows, this causes stretching of the fibres, and a considerable traction on the capsule. One part tends to draw the lens capsule forwards and outwards, and another part draws it backwards and outwards, the effect on the elastic curved lens fibres is to cause them to become more and more bent and kept in a state of tension.

The condition existing in several types of animals is described, and, finally, the condition found in some ill-developed and abnormal eyes is stated. The various stages are illustrated by twelve beautiful photomicrographs taken by Dr. Collier Green, of Derby.

C. D. M.

(4) The histological details of the colloid excrescences of the membrane of Bruch have been tolerably fully worked out, but the explanation of their origin is by no means settled. There are two chief theories: (1) the transformation theory, which holds that they arise from actual transformation of the cells of the pigment epithelium, and (2) the deposition theory, which holds that they arise, as the membrane itself is supposed to arise, as a deposit from the cells of the pigment epithelium, but without actual transformation of the pigment cells into excrescences.

Points for and against these theories are given by **Coats**, and the origin of the membrane of Bruch is discussed ; it is shown that this membrane, which seems homogenous when stained with eosin, can be resolved into two layers by special staining, and this is suggestive of the two structures having a separate origin. The fine elastic fibres of the outer layer are in all respects similar to the elastic fibres found in the neighbouring choroid, and must be of the same origin, while the inner homogenous layer has all the appearance of a cuticular product, laid down by the pigment epithelium.

There is much evidence that these colloid bodies arise from the inner layer only, and this is seen to be the case with sections stained with Weigert's elastic tissue stain.

The conclusion reached is in favour of the deposition theory, though both of them presuppose an abnormal metabolism of the pigment epithelium. An historical *r  sum  * of the growth of our knowledge of the minute anatomy of colloid bodies is given, together with an extensive bibliography on the subject.

C. D. M.

(5) A careful account is given of the histology of the normal caruncle, based on the examination of 100 specimens taken from people of all ages. The most important point on which **Enslin** dwells at great length is the existence in the caruncle of true mucous glands, as well as the ordinary goblet cells and small glandular depressions lined with mucous cells, which have already been described. Unfortunately, he has not employed any methods of fixing and staining the mucous cells without allowing the mucin granules to swell. He takes the more probable view that the serous glands found in the caruncle are accessory tear glands and not large sweat glands.

LESLIE PATON.

(6) Examination of human structures with the ultra-microscope is extremely difficult, owing to the phenomena of light interference. **Peschel**, however, is able to record the following important facts.—Bowman's membrane shows a close meshwork with dark contours ; there is rarely or never any systematic arrangement prevalent ; the same structure we find in Descemet's membrane, with the only difference that the net of fibres is here more marked than in Bowman's membrane. It is very important to learn that the anterior as well as the posterior capsule of the lens shows no structure whatever in the adult eye, while there is a very small and irregular meshwork in the capsule of the new-born lens but never any trace of lamellar structure. The zonule of Zinn reveals longitudinal meshes, which occasionally blend to form long fibres.

R. GRUBER.

(7) **M  nch** in this paper continues his investigations into the

nature of the stroma cells of the iris, which he maintains are principally of a muscular nature (*vide* same journal, Band XII, 1904), and now he maintains that he has demonstrated their nervous supply. Certain large cells with large nuclei and many processes he takes as ganglion cells, and going out from these he has seen fine processes which unite and branch with other processes to form a dense network, fibres of which run to these stroma cells.

A. LEVY.

(8) **Cosse** gives a *résumé* of Professor Motais' well-known description of the anatomy and physiology of the external orbital muscles and of Tenon's capsule.

II.—BACTERIOLOGY.

- (1) **Chaillous.**—Two cases of traumatic infection of the eye by an anaërobic microbe (*bacillus perfringens*). [Deux cas d'infection traumatique de globe oculaire par un microbe anaérobie (*bacillus perfringens*).] *Ann. d'Oculistique*, T. CXXXIV, p. 115, août, 1905.
- (2) **Smith, Dorland.**—Eye infection: second hundred cases with bacteriological examination. *Archives of Ophthalmology*, September, 1905.
- (3) **Polatti, A.**—Panophthalmitis due to the *bacillus subtilis*. *Annali di Ottalmologia*, Vol. XXXIV (1905), fasc. 1-2.
- (4) **Salvaneschi, E.**—A contribution to the bacteriology of hypopyon-keratitis. *Annali di Ottalmologia*, Vol. XXXV (1906), fasc., 1-2.
- (5) **Bietti, A.**—Bacteriological researches in Hypopyon-Keratitis: *bacillus pyocyanus*, *bacterium coli*. *Annali di Ottalmologia*, Vol. XXXV (1906), fasc. 5-6.
- (6) **McKee, Hanford.**—Ulceration of the cornea from the diplo-bacillus of Morax-Axenfeld. *Montreal Medical Journal*, April, 1906.
- (7) **Wopfner.**—A case of metastatic panophthalmitis after cataract extraction due to Friedländer's pneumobacilli. (Ein fall von metastatischer Panophthalmie bei einem Kataraktoperierten als Folge einer Kruppösen Pneumonie mit Friedländer's Pneumobacillus.) *Klin. Monatsbl. f. Augenheilkunde*, April-Mai, 1906.

- (8) Darier, A.—**Gaseous panophthalmitis and the bacillus perfringens.** (*Panophthalmie gazeuse et bacillus perfringens.*) *La Clinique Ophtalmologique*, 10. août, 1906.

(1) Chaillous reports two cases from Morax's clinic in which panophthalmitis, accompanied by considerable systemic disturbance, developed rapidly after penetrating wounds with chips of metal. On bacteriological examination, the anaërobic bacillus perfringens was found in pure cultures in each of them. Details are given of the bacteriological investigation and inoculation experiments, and there are figures illustrating the appearances of the microbe and of sections of one of the enucleated eyes.

R. J. C.

(2) One hundred patients are included in Smith's studies. 159 eyes being affected. The cases are grouped as infections of the conjunctiva (65 cases), of the cornea (10), of the lacrymal sac (10), and other cases (15).

Of the 65 cases of conjunctival infection, 38 (about three-fifths) were caused by four common germs: 14 by the staphylococcus, 12 by the pneumococcus, 6 by the gonococcus, and 6 by the diplobacillus. In the remaining 27, no one organism was especially prominent. Of the 10 corneal cases the streptococcus occurred in 4, and the staphylococcus aureus in 2. Of the 10 lacrymal cases, pneumococci and streptococci were present in 7. In 10 cases, no organisms of any kind could be found.

"The pneumococcus, the various staphylococci, and members of the xerosis and subtilis groups of bacilli were the organisms most frequently found. The Koch-Weeks' bacillus, the diplococcus intracellularis, and the diphtheria bacillus occurred but once each. The colon group was represented in several cases. The small number of gonococci found is partly due to the interference of vaseline with the bacteriological examination. The xerosis group (for there seem to be several closely-related organisms which vary in some slight regard from the bacillus xerosis as described by Migula) was represented in 18 cases, in a variety of pathological conditions." He says, however, that "while these organisms probably took no part in the process in many of these cases, in some this is not so certain."

Enough evidence has, he thinks, "accumulated to warrant the placing of conjunctivitis at least upon a bacteriological basis of classification, and to afford strong indications that there may be the same basis for treatment. That there are still some exceptions to be explained in adopting such a basis argues rather gaps in our knowledge than any inherent error in the idea. Such a classification has been tentatively followed in describing the present 100 cases."

"As to a bacteriological basis of treatment, the knowledge of just what germ we have to deal with, of its habits and its possibilities, in addition to the knowledge not always otherwise appreciated, that we are dealing with a germ process, affects our methods in the mild as well as in the severe cases. In the selective use of remedies based on the kind of organism present, we have much to learn. The value of zinc chloride in diplococcus infection, of antitoxin in Klebs-Loeffler infection, and of mercury in focal infection with the staphylococcus, are settled facts of therapeusis. Antipneumococcic serum in such pneumococcus infections as serpent ulcer, and antistreptococcic serum in streptococcus necrosis of the cornea and panophthalmitis, have as yet only a theoretical value, but they would seem worthy of trial."

C.A.O.

(3) Polatti's researches were carried out in the laboratory of Professor Galli Valerio, at Lausanne. Inoculation of cultures of the bacillus subtilis into the vitreous of rabbits, as well as injections of an emulsion of soil taken from the vineyards near Lausanne, or the introduction into the vitreous of foreign bodies infected by the bacillus, have largely confirmed the observations of Kayser and of Silberschmidt (*see THE OPHTHALMOSCOPE*, 1903, p. 220). Polatti draws the following general conclusions: The pathogenic action of the bacillus subtilis in the earth of the fields and reaching the vitreous humour, as by a penetrating wound, is certain. The vitreous represents an excellent culture medium for the microbe. In no case of panophthalmitis caused by the *B. subtilis* has the micro-organism been found in the blood, so that exenteration may be performed without danger. The *B. subtilis* is widely distributed in nature. The panophthalmitis set up by the microbe should therefore be observed in every part of the world, a fact that will be proved by ulterior researches.

A. ANTONELLI.

(4) Salvaneschi has studied from a bacteriological point of view 34 cases of hypopyon-keratitis. In 26 cases the pneumococcus was found in pure culture, in 3 cases the staphylococcus, in 1 case the streptococcus, and in 4 cases the pneumococcus associated with other micro-organisms. It therefore follows that Fränkel's diplococcus is the chief cause of the affection. It is often the only microbe found in the corneal abscess, and its virulence appears to be greater when it occurs in pure culture. Inoculation of the cornea of the rabbit with material from a case of hypopyon-keratitis in man has almost always yielded negative results in the author's experience.

A. ANTONELLI.

(5) Among the cases of hypopyon-keratitis examined bacteriologically by Bietti, the author confines his remarks to those of rarer etiology. The *B. pyocyaneus* is, as a rule,

virulent as regards the eye (experiences of de Berardinis). In man it may cause hypopyon-keratitis, perhaps after an injury, perhaps as a complication of conjunctivitis due to the same organism. The bacillus coli, which plays an important role in ocular pathology, may cause slight or very severe forms of hypopyon-keratitis.

A. ANTONELLI.

(6) **McKee** has seen in Montreal, Canada, 70 cases of diplobacillary conjunctivitis, among which ulcers of the cornea were present in two. He reports the case of a man, aged 50 years, suffering from hypopyon-keratitis, smears and cultures from which yielded diplobacilli. From the conjunctival sac were obtained, in addition to the organism named, the xerosis bacillus and the staphylococcus pyogenes albus. A good recovery ($V.=2/3$) ensued under treatment by zinc sulphate (gr. 1 to the ounce), scopolamine, and irrigation with warm boric acid solution.

S. S.

(7) **Wopfner** observed the following case: four days after an operation for cataract, a patient, who so far had done perfectly well, showed signs of double lobar pneumonia. At the same time, iritis and abscess of the vitreous appeared in the operated eye, but the corneal wound showed no infiltration whatever. The patient died a few days later. The bacteriological examination of the lung and vitreous demonstrated Friedländer's bacillus in pure culture in both organs. Sections through the eye made it clear that the bacilli had gained entrance to the eye by way of the retinal vessels in and near the optic disc.

C. MARKYS.

(8) **Darier** reports a case of fulminating panophthalmitis in a workman, where it became necessary to remove the eye shortly after the injury with a piece of metal. Cover-glasses smeared with material from various parts of the eye after enucleation, showed one and the same microbe, namely, what Darier considers to be the bacillus perfringens. Cultures, however, were not made.

S. S.

III.—ENUCLEATION OF THE EYEBALL UNDER LOCAL ANÆSTHESIA.

Terrien, F. — On enucleation with local anæsthesia.*
 (De l'énucléation avec anesthésie locale.) *Archives d'ophtalmologie*, février, 1906.

The present anomalous state of the law in France, which appears to hold a surgeon directly responsible for the death of

* For abstract of a recent paper on the same subject by Otto Meyer, see THE OPHTHALMOSCOPE, February, 1906, p. 95.—EDITORS.

a patient under chloroform, ether, etc., unless the patient has been first expressly warned of the dangers inseparable from the induction of general anaesthesia, has led Terrien to enquire closely into the best way of removing the eyeball under local anaesthesia. He adopts the following plan: the surface of the eye is anaesthetised by 4% cocaine or stovaine dropped into the eye twice or thrice at intervals of a few minutes. Should the globe be inflamed, adrenaline, 1 : 1,000, is added to the cocaine or stovaine. When superficial anaesthesia is secured, four deep subconjunctival injections, one at each end of the horizontal and vertical meridian of the eyeball, are made of cocaine or of stovaine (1 : 150), about thirty minimis of the solution being employed. As the immediate result of the injection, chemosis completely surrounding the cornea is set up, and somewhat later there is analgesia of the entire anterior segment of the eyeball. Terrien next injects beneath the skin of some part of the patient's body one centigramme of morphine. The operation is then commenced by section of the conjunctiva and of the tendons of the recti muscles, care being taken to exercise no great traction upon the last-named structures. By means of an Anel's syringe, provided with a curved and blunt needle, half a cubic centimetre of the following solution is then injected deeply around the posterior pole of the eye:—cocaine and morphine, of each 0 gr. 01; stovaine and sodium chloride, of each 0 gr. 02; distilled and sterilised water, 5. After waiting for three or four minutes, the optic nerve is divided and the operation completed. Shrunken eyes *par excellence* are those most suited to the procedure. The absolute contraindication to enucleation under local anaesthesia, according to Terrien, is a high grade of inflammation, such as exists in cases of panophthalmitis.

S. S.

IV.—THE INSTRUMENTS EMPLOYED IN EYE SURGERY.

Landolt, E. — Some remarks upon the Instruments usually employed in Eye Surgery. (*Quelques remarques sur les instruments courants en chirurgie oculaire.*) *Archives d'ophtalmologie*, mai, 1906.

Landolt's article on the instruments commonly used in eye surgery, which extends to twenty-six pages, of the *Archives* and is illustrated by twenty-four cuts, deserves to be read in the original.

The ophthalmic surgeon must first have a clear conception of what he wishes to effect, and then should know exactly how that

ought to be done. The handling of instruments in operations on the eye, as Landolt points out, requires more delicacy than is called for in general surgery. Handled instruments, as knives, cystitomes, curettes, and so forth, must be held between the pulp of the thumb and of the first two fingers, and their action must be directed by movements of the fingers alone. For example, the sawing movements of a narrow blade, as made in cataract extraction, can be carried out correctly only when they are executed by extension and retraction of the fingers holding the knife (*see* Figs. 1 and 2).

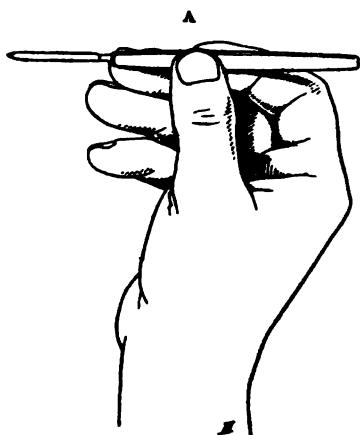


FIG. 1.

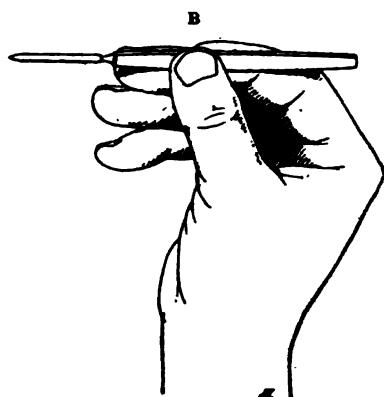


FIG. 2.

After these preliminary remarks, Landolt takes up *seriatim* the various classes of instruments in common use. 1. **Forceps.**—Struck with the ease of manipulating a pair of dentists' forceps, at least 12 cm. long, Landolt has replaced all his forceps of which the spring was hard by others of softer action, at the same time taking care that the shanks of the new instruments remain firm and rigid. He criticises the modern type of forceps devoid of roughenings, which are of assistance in allowing the instrument to be held securely. With regard to fixation forceps, Landolt employs a model of which the teeth are placed, not in the axis of the instrument, as usual, but obliquely, so that they may take a perpendicular grasp of the parts to which they are applied. They are made in three sizes, the smallest for operations upon the ocular muscles and the largest for enucleation of the eyeball. The sharpness of the teeth of forceps, and the exactitude with which they meet, are things that should always be verified before the instrument is sterilised. For removing sutures, non-flexible tapering forceps are preferable to any others. 2. **Needle-holders.**—Landolt prefers a needle-holder of his own design

(made by Lüer, of Paris), which is self-fixing and capable of taking a needle of any size. It resembles the forceps used in England for the torsion of bleeding vessels, except in the circumstance that one of the toothed ends is shod, as it were, with copper, in order that the needles may not be broken.

3. The handles of instruments.—The author believes that we leave far too much to makers as regards both the substance and the shape of the handles of our instruments. On the vexed question of ivory *v.* metal handles, Landolt speaks in no uncertain tones. He believes that even when made of aluminium, metal renders the instrument top-heavy, and is liable, besides, to be acted on by some of the antiseptic solutions in everyday use. It has been stated that ivory handles are unable to support the high temperature of sterilisation. After all, ivory, according to Landolt, stands quite well a temperature not exceeding 140°, beyond which it is never necessary to go in sterilising the instrument by heat. That temperature, however, melts the material used by certain makers to fix the blade in the ivory handle. It should not be difficult, Landolt remarks, to find a cement capable of withstanding a temperature of 140°, and, besides, the best makers now screw the blade into the ivory handle, which is furnished not with a mere hole, but with a suitable screw socket. The fact that metal and ivory do not expand equally under heat can entail nothing worse than a cracked handle, and even that accident will seldom happen if the temperature be raised gradually to the desired point. As to the shape of the handle, the ordinary form is good, and becomes objectionable only when manufacturers make unauthorised departures from that model.

4. The blades of instruments.—The Graefe cataract knife still enjoys great popularity, especially among the younger surgeons, probably because with this instrument puncture, counter-puncture, and section are made separately, so that the operator can concentrate his attention upon each individual act. With the keratome, on the other hand, puncture and section are made almost at the same moment, with the consequence that the operator must give his attention at one and the same time to the point, the blade, and the cutting edges of the instrument. With respect to keratomes, Landolt describes the instrument he has employed for years—that is to say, a keratome of which the blade is merely curved and not angled, and shaped something like the ace of spades. The stem of this instrument, moreover, is shorter than usual (22mm. as compared with 35mm.) Many of the curettes, spatulas, and spoons on the market have handles that are far too long for delicate use in difficult circumstances.

5. Bistouries.—The scalpels employed in eye work, for chalazion,

plastic operations, and so forth, should have small and short blades—be “stumpy,” in fact—according to conventional ideas. Weber’s canaliculus knife, as made with a markedly beaked end, comes in for some criticism from Landolt, who prefers a model the smaller end of which forms, as it were, a continuation in a straight line of the blade.* Lacrymal probes should have a slender olive-shaped projection at the end, so that they may readily make their way without damaging the mucous membrane of the nasal duct. The galvano-cautery should be as short as possible as regards the part which intervenes between the place where the instrument is held and the glowing point. A galvano-cautery on these lines, designed by Landolt, is made by M. François. 6. **Scissors.**—Scissors intended for use in eye work are often too large, and sometimes even too clumsy. Few writers, even of systematic text-books, appear to understand how scissors should be held. They should be grasped (as shown in Fig. 3) between the ends of the thumb and of the first

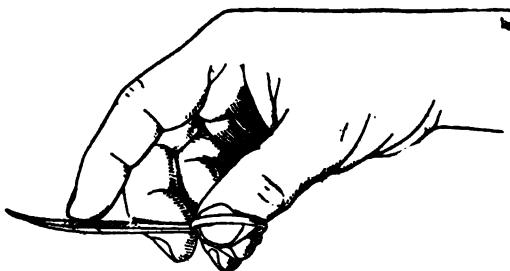


FIG. 3.

three fingers. They thus become not only a kind of cutting forceps, but also one of the most delicate of probes. Many strabismus scissors have unduly long blades, and the extremity of the cutting edge (the only part sometimes employed in eye work) often leaves much to be desired in the way of sharpness. Sharp ends should generally be avoided in eye scissors. Nowadays the old screw fastening of the blades of scissors has been replaced by a simple mechanism which allows of ready disarticulation for purposes of cleansing. Landolt, however, believes that there is something to be said in favour of the screw, inasmuch as it kept the blades in close apposition. Of the newer forms of fastening, the author prefers that known as Collin’s to the other in which the attachment is made by a button fixed to one branch fitting into a slot made in

* A similar instrument has long been known in England as “Tweedy’s canaliculus knife.”—**EDITORS.**

the other branch of the scissors. It is as necessary to verify the edge of scissors, especially towards the point, as to test the edge of a cataract knife before operation.

In conclusion, Landolt points out that during the preaseptic epoch, when surgeons, with touching simplicity, sought the explanation of each failure in a defect of operative technique, the designing of instruments was brought to a high pitch of perfection. To-day when, happily or unhappily, asepsis often leads a badly performed operation to a relatively happy end, there is a danger of neglecting surgical technique too much. At the same time it can be shown that the results obtained by the clever surgeon are superior, both in quantity and quality, to those of the clumsy or maladroit operator.

S. S.

V.—OCULAR SYMPTOMS AND PROGNOSIS.

De Micas.—The prognosis of certain general diseases judged by some of their ocular symptoms. (*Le prognostic de certaines maladies générales d'après quelques-unes de leurs manifestations oculaires.*) *Recueil d'ophthalmologie*, février, 1904.

De Micas has collected a number of interesting facts concerning the prognostic significance of certain ocular manifestations which have been observed by himself and others in general diseases.

Measles is generally associated with oculo-nasal catarrh which has no prognostic significance, but corneal ulceration, keratomalacia, hemeralopia with xerosis of conjunctiva, and amaurosis during the later stages of the disease should be regarded as serious. The last is indicative of implication of the kidneys or meninges. *Smallpox* is often complicated by corneal or conjunctival pustules, which, although serious as regards the sight, do not particularly endanger life. Keratomalacia or bilateral exophthalmos is indicative of a particularly serious or probably fatal case. *Whooping cough* may be complicated by blindness, which is highly suggestive of a fatal termination. An indication of a profound effect of the toxins of *Typhoid Fever* may be given by the appearance of transitory amaurosis, retrobulbar neuritis, corneal abscess, or oculomotor paralysis. Of serious import in *Cholera* are conjunctiva ecchymosis, blackish patches on the sclerotic, and loss of pupillary reactions. *Syphilitic neuroretinitis* is indicative of impending cerebral complications, and so is the early appearance of iritis in syphilis. Of 40 cases of syphilitic iritis

observed by Troussseau only 6 remained free from cerebral symptoms, 9 developed serious nervous symptoms, 3 became general paralytics, 12 developed tabes, 8 had some cerebral accident, and 2 died, probably of cerebral or visceral syphilis unrecognised and untreated at the time. In *Diabetes* failure of accommodation and amblyopia vary with the glycosuria, and are of no great significance. Some authors consider the development of cataract, especially if rapidly progressive, as prognosticating a fatal termination in a comparatively short time. The prognosis in cases of *Bright's Disease* with retinitis is always bad, but less so in scarlatinal and pregnancy nephritis. The prognosis is better in the well-to-do classes than in the poor, and in women than in men. In *Pneumonia*, mydriasis—more marked on the pneumonic side—is common, but in the mortal cases it is the exception, and the pupils are then practically equal.

J. JAMESON EVANS.

VI.—INTERSTITIAL KERATITIS.

- (1) Anargyros (Athens).—Double parenchymatous keratitis in acquired syphilis. (*Kéратite parenchymateuse double dans la syphilis acquise.*) *La Clinique Ophthalmologique*, 25 fevrier, 1905.
- (2) Le Roux.—Diffuse interstitial keratitis in acquired syphilis. (*Kéратite interstitielle diffuse dans la syphilis acquise.*) *L'Ophthalmologie Provinciale*, II, 32, mai, 1905.
- (3) Ohm.—A contribution to the subject of traumatic parenchymatous keratitis. (*Beitrag zur Keratitis parenchymatosa traumatica.*) *Wochenschrift für Therapie und Hygiene des Auges*, 2 November, 1905.
- (4) Elschnig, A.—On keratitis parenchymatosa. (*Ueber Keratitis parenchymatosa.*) v. Graefe's *Archiv f. Ophthalmologie*, Bd. 62, 3 Heft, Januar 21, 1906.
- (5) Terlinck, H.—Post-traumatic parenchymatous keratitis. (*Les kératites parenchymateuses post-traumatiques.*) *La Clinique Ophthalmologique*, 10 fevrier, 1906.
- (6) Collomb, C.—A clinical and statistical study of relapse in diffuse parenchymatous keratitis. (*Étude statistique et clinique sur les récidives de la kératite parenchymateuse diffuse.*) *Révue Médicale de la Suisse Romande*, 20 mars, 1906.

- (7) **Faith, Thomas.**—**Interstitial keratitis excited by traumatism** *American Journal of Ophthalmology*, June, 1906.

(1) **Anargyros** describes a case of double keratitis in a man of 35, whose primary infection had been six years previously, who presented numerous evidences thereof, and who had no hereditary taint. The keratitis in this case was to be regarded as a tertiary manifestation: energetic antisyphilitic treatment resulted in gradual amelioration of the symptoms. The author describes the corneal lesions in considerable detail, and states that no other parts of the globes were affected, but that a paresis of the left external rectus existed. **ERNEST THOMSON.**

(2) **Le Roux** records a case of interstitial keratitis due to acquired syphilis and accompanied by a nasal gumma in a woman, 65 years old. **R. J. C.**

(3) To this interesting subject **Ohm** contributes three cases. In the first, a girl of 23 years was struck on the right eye by a piece of cardboard. The injury appears to have been quite trifling. Parenchymatous keratitis supervened in a typical manner, not only in the injured right eye, but also in the left eye after a two months' interval. The patient was the subject of hereditary syphilis. In the second and third cases there was no suspicion of hereditary syphilis, and no history obtainable of the acquired form. Both were strong healthy men. In both a comparatively trifling injury—a foreign body in the one case, and a drop of dilute sulphuric acid in the other—to the eye was followed by parenchymatous keratitis of the injured eye. Not only so, but in the second case a similar accident to the fellow eye three years previously had been followed by keratitis of that eye, so that the patient was able to correctly foretell what was about to happen on the second occasion. **ERNEST THOMSON.**

(4) **Elschnig** had the opportunity of examining anatomically the eyes of a child of eight years, who had suffered from bilateral interstitial keratitis. As this is the first time that so typical a case has been submitted to anatomical examination, his description, which is as thorough as it is instructive, should be carefully digested by all who take a scientific interest in this important disease. Elschnig finds division and proliferation of the corneal cells, which lie in the normal or distended interlamellar spaces partly intermingled with leucocytes. These cells undergo in some parts a curious form of necrosis, with absorption of the intervening lamellæ, while the process of final restitution again proceeds from the fixed cells, which proliferate in the neighbourhood of the necrotic foci. The new vessels which appear in the meantime participate in this process

but more by supplying material for the building-up process and not—the very worst cases perhaps excepted—by the production of connective tissue. These vessels are merely endothelial tubes, which lie superficially along the whole periphery but ramify into the deeper layers in the more central parts of the cornea. Elschnig concludes that the corneal changes are certainly of primary origin and due neither to syphilis nor to tuberculosis of the cornea nor to affection of the endothelium of Descemet's membrane, as sometimes stated.

R. GRUBER.

(5) Terlinck refers to the writings on this subject of Darier, Ohm, Guillery, Perlia, and Stervart, and relates several cases which occurred in the *clinique* of Professor Gallemaerts at Brussels. Two of these are cases such as have been described by others : in an unhealthy subject interstitial keratitis develops in one or both eyes as the result of a slight injury of one cornea, such, for example, as the removal of a foreign body. In a third case Terlinck raises the question as to the relation between a bilateral deep keratitis and a severe blow on the skull in the parietal region. In the case quoted he is of opinion that such relation did exist, and the opinion is supported by Professor Gallemaerts who had seen another case in which, as the result of an accident (not detailed), unilateral vaso-motor troubles were accompanied by typical parenchymatous keratitis on the same side. The importance of these cases from a medico-legal standpoint is indicated by Terlinck.

ERNEST THOMSON.

(6) Does parenchymatous keratitis relapse? Authors give the word 'relapse' different significations, hence opinions differ. According to Horner, relapse is frequent ; to Fuchs, rare ; to Fournier, not very frequent ; Lagrange, Salzowski, and others make no mention of the subject. Panas considers relapse always to be dreaded, especially when the cornea remains partially opaque after a first attack. Nimier and Despagnet use 'relapse' in the sense of 'exacerbation,' and find that it does occur during the course of resolution, or even when almost cured, but rarely. Hirschberg states that 30 % of cases insufficiently treated relapse. Wecker notes a relapse in several patients past puberty, after an interval of two or three years, leaving much greater corneal damage behind than did the first attack. Saemisch finds relapse not very rare. E. v. Hippel has followed 16 cases from 6 to 20 years. Five relapsed after intervals of from 2 months to 9 years. Four were of rheumatic and one of doubtful origin. Of 71 other cases watched for a shorter time, 10 relapsed. Five were due to syphilis, three to tuberculosis, and in one the cause was obscure. From these observations, v. Hippel considers relapses not to be rare.

Collomb gives notes of 9 cases of relapse out of 170 cases of

parenchymatous keratitis after intervals of 8 months to 15 years. Several had undergone a mercurial treatment. He does not find the second attack to have any peculiar characteristics, but the prognosis is less favourable, since the restoration of transparency is less assured, and the persistence of notable opacities is more frequent. His observations do not confirm Wecker's view, that relapse mostly supervenes in patients past puberty, or Panas's opinion, that those cases in which the cornea was most damaged in a first attack are most likely to relapse. Collomb's percentage of relapses is 5·3, which must be taken as a minimum figure, since the cases evidently need longer watching, the possible interval being sometimes so long—in one case, 15 years.

ROSA FORD.

(7) In the course of a somewhat elaborate article **Faith** insists upon the fact (which nobody will nowadays be inclined to deny) that a trauma may excite a typical interstitial keratitis in a patient who has a latent dyscrasia, such as hereditary syphilis, predisposing to such a disease. In support of his views, he quotes a good many instances culled from literature, where the two events were connected as cause and effect, and also gives details of four cases of his own. The injury in the latter was in the nature of a corneal abrasion (3) or a burn by curling tongs (1).

S. S.

VII.—OPERATIONS.

- (1) Todd, F. C.—**Exirpation of the lacrymal sac after injection of paraffin.** *Archives of Ophthalmology*, Vol. XXXIII, No. 4, July, 1904.
- (2) Natanson, junr.—**Operation for symblepharon, May's method.** (*Beitrag zur Technik der operation bei Symblepharon totale nach May.*) *Klin. Monatsbl. f. Augenheilkunde*, 1904, Bd. II, p. 116.
- (3) Hoederath.—**A new method of iridotomy.** (*Ein neues Iridotomieverfahren.*) *Klin. Monatsbl. f. Augenheilkunde*, 1904, p. 130.
- (4) Nicolai, C.—**Transplantation of a rabbit's eye.** (*Transplantatie van een leonijnen-vog.*) *Ned. Tijdschrift v. Geneeskunde*, 1904, II, p. 722.
- (5) Mazza, A.—**A very large ivory exostosis of the orbital cavity.** (*Exostose éburnée très volumineuse de la cavité orbitaire.*) *Ann. d'oculistique*, T. CXXXII, p. 419, décembre, 1904.

- (6) Rollet, M.—Enucleation with the raspatory, followed by the introduction of a cutaneo-adipose graft. (*Enucleation à la rugine suivie de greffé cutanée adipeuse.*) *La Clinique ophthalmologique*, 10 décembre, 1904.
- (7) Lopez.—The treatment of pterygium. (*Traitemennt de pterygion.*) *Recueil d'ophthalmologie*, février, 1905.
- (8) Spratt, Charles Nelson.—The use of paraffin spheres in Frost's operation (modified Mules's), with a report of 23 cases. *Archives of Ophthalmology*, March, 1905.
- (9) Heilborn, Franz.—On abrasio cornea. (*Ueber Abrasio Cornea.*) *Woch. f. Therapie u. Hygiene des Auges*, April 20, 1905.
- (10) Snell, S.—On peritomy for diffuse corneitis and other affections of the cornea. *Ophthalmology*, April, 1905.
- (11) Scionti, O.—Notes on anterior synechiotomy. (*Contributo allo studio sulla sinechistomia anteriore.*) *La Clinica Oculistica*, Aprile-Luglio, 1905.
- (12) Wolff, H.—On my symblepharon operation in which the grafts were sewn to the fascial extension of the tendon of the superior rectus muscle. (*Ueber meine Symblepharonoperation mit Annähung der transplantierten Lappen an die Sehnenausstrahlung des Rectus oculi superioris.*) *Zeitschrift für Augenheilkunde*, Mai, 1905.
- (13) Lukis, C. P.—Orbital sarcoma.—Krönlein's operation *Indian Medical Gazette*, June, 1905, and *Ophthalmic Review*, August, 1905.
- (14) Elliot, R. H.—A modified method of transplanting a pterygium. *Indian Medical Gazette*, June, 1905.
- (15) Chevallereau, A.—Combined transverse keratotomy. (*La kératotomie transversale combinée.*) *La Clinique ophthalmologique*, 10 juin, 1905.
- (16) Bruno-Bourdeaux.—Note on a method of reducing the eyeball. (*Note sur un procédé d'évidement du globe.*) *Le Clinique ophthalmologique*, 25 juin, 1905.
- (17) Dunn, Percy.—On the technique of intra-ocular operations. *Clinical Journal*, July 5, 1905.
- (18) Suker, George F.—Kuhnt's conjunctival flap. *Ophthalmology*, July, 1905.
- (19) Haberkamp.—A very simple operation for glaucoma. (*Opération très simple pour le glaucome.*) *La Clinique ophthalmologique*, 10 juillet, 1905.

- (20) Grossmann, Karl.—**Conical cornea and hot-air cautery.** *British Medical Journal*, August 26th, 1905.
- (21) Schoen.—**Hydrophthalmos, glaucoma, and iridectomy.** (*Hydrophthalmus, Glaukom, und Iridectomie.*) *Centralbl. f. prak. Augenh.*, Oktober, 1905.
- (22) Abadie, C.—**Sympathectomy in glaucoma.** (De la *sympathectomie pour le glaucome.*) *La Clinique ophthalmologique*, 25 octobre, 1905.
- (23) Gonzalez, Jose de J.—A new method of ablation of total staphyloma of the cornea. (Nota acerca de un procedimiento de ablacion del estafiloma completo de la cornea.) *Anales de Oftalmologia*, Nov., 1905.
- (24) Baudoin.—A remark on the subject of M. Antonelli's intermarginal operation of chalazion. (Une observation au sujet de l'opération intermarginale du chalazion de M. Antonelli.) *La Clinique ophthalmologique*, 25 novembre, 1905.
- (25) Jocqs, R.—Some remarks upon extirpation of the lacrymal sac. *La Clinique ophthalmologique*, 25 janvier, 1906, and *Ophth. Klinik*, Februar, 1906.

(1) After pointing out the indications for the operation, and the difficulties of the procedure when carried out in the usual manner, together with the final uncertainty as to whether the entire sac has been removed, Todd describes his operation, which is briefly as follows: first, an emptying and thorough cleansing of the sac with boric acid solution and argyrol. Second, a filling of the sac with melted paraffin, which quickly hardens and outlines it. Third, incision and dissection out of the sac with the contained paraffin. Buttonholing is of no consequence, as the paraffin is hard and does not escape. The canaliculi are destroyed later by cauterization. The entire incision should be below the tendo oculi. F. W. MARLOW.

(2) In cases of total symblepharon Natanson recommends a method used first by Axenfeld. First, a flap of skin (Thiersch's method) is fixed by sutures on the surface of the conjunctival wound, after which a prothesis is inserted between conjunctiva and eyeball. A. BIRCH-HIRSCHFELD.

(3) In cases with very flat anterior chamber Hoederath has used a new method with success. He makes a corneal incision with the lance, and introduces, first, a spatula, and, then, a Graefe knife into the anterior chamber. He next removes the spatula, and excises a piece of the iris with the knife.

A. BIRCH-HIRSCHFELD.

(4) In some patients Nicolai has transplanted a rabbit's eye in the cavity after enucleation of the bulb, following Lagrange's method. The eye should be taken from a living rabbit. It is preferable to use a small animal. A piece of conjunctiva must be left adhering to the animal's eye ; this should be sewn to the patient's conjunctiva, in order to hold the eye in its proper position. The rabbit's eye shrinks a little in the course of time, forming a very beautiful stump, over which an ordinary shell-shaped artificial eye can be worn with great satisfaction to the patient.

G. F. ROCHAT.

(5) Mazza records a case in which an exostosis, 5 c.m. high, 4 c.m. broad, and 3 c.m. thick, was successfully removed from the supero-internal angle of the orbit, and discusses the etiology, diagnosis, and treatment of the condition. R. J. COULTER.

(6) M. Rollet describes a case in which, after enucleation of the eye, a disc of skin and subjacent fat dissected from the deltoid region, of a somewhat larger size than that of the cornea, was introduced into the cavity and stitched to the four recti tendons. On the seventh day the whole graft had adhered and the stump was possessed of extensive movements in all directions.

ERNEST THOMSON.

(7) Lopez describes his method as follows :—tear away the corneal pterygium, dissect up the conjunctiva above and below for about 5 millimetres along the corneal margin. Excise the head of the pterygium. Pass a silk suture through the end of the pterygium and the tendon of the internal rectus which has been previously exposed. Remove the stitch at the end of forty-eight hours. By this method recurrences are avoided.

J. JAMESON EVANS.

(8) After describing Frost's modification of Mules' operation, Spratt mentions the various substances that have been suggested as aids in obtaining a permanent movable stump over which to wear an artificial eye. For the following reasons, he regards paraffin as the most satisfactory material : it is cheap, and is easily obtained ; it can be cut to any desired size ; and no extra instrument is necessary to introduce the artificial sphere into the orbital cavity. In addition, he says, the material is non-irritating, and it moulds itself to the shape of the cavity which has been left after the removal of the eyeball. Further, he states that the mass is finally surrounded by a fibrous capsule, and, in time, fine strands of tissue penetrate it, thus reducing any danger of extrusion to a minimum.

JOSEPHINE W. HILDRUP.

(9) Heilborn considers that the operation of scraping the cornea often succeeds in bettering the sight in cases of corneal opacities, provided that the latter are confined to the superficial lamellæ

of the substantia propria and that they show no signs of activity. The operation is performed under focal illumination with the aid of a small sharp spoon and a narrow Graefe cataract knife. Heilborn's experiences extend to forty operations of the kind, of which twenty-five were done in order to improve sight, and fifteen in order to prevent relapses of inflammation in old cicatrices. The author believes that massage with yellow ointment succeeds better after than before the performance of abrasion. S. S.

(10) Snell has made use of peritomy to much advantage, and without danger, in more than two hundred cases. He says that "it may be employed as a routine treatment in diffuse corneitis, and may be expected often to materially shorten the course of this frequently very protracted and serious disease, and the cornea will recover more completely its transparency than if the operation had not been performed." He also says that it may be used advantageously in a variety of other corneal affections.

C. A. O.

(11) Anterior synechiotomy—in other words, the division of adhesions between iris and cornea—is practised with the following objects: æsthetic, optic, and prophylactic, which latter is of the first importance. As Scionti rightly affirms, anterior synechia may cause: (1) Repeated attacks of iritis from impeded mobility of the pupil under the influence of different light intensity; (2) Glaucoma, due to the difficult passage of fluids from the eye across the irido-corneal angle, following the apposition of the iris to the posterior surface of the cornea; (3) Endocular infections and panophthalmitis from pathogenic germs, left latent in the irido-corneal cicatrix (*eudogenous infection*), or penetrating from outside the eye through the tissue of the synechia (*ectogenous infection*). The author after carefully considering the cases operated for anterior synechia in the Naples Clinique between 1902 and 1904, 50 in number, strongly recommends the use of Piccoli's instrument, which is made up of a falciform point (3 millimetres long and 1 millimeter broad), fixed to a stem of elliptical section for the length of 1 centimeter from the point, when it bends on itself at an obtuse angle in the plain of the falciform point, and continues cylindrical in section up to the handle. Having introduced the instrument from a point in the cornea (diametrically opposite that of the synechia), into the anterior chamber, it is slowly passed between iris and cornea in such a way as to include the synechia in the falciform portion, and with one or more attempts the adhesions are separated, and the instrument withdrawn. The instrument is very advantageously constructed of elliptical section in its first portion, as, by this means, the incision made in the cornea with its falciform point is completely closed, and loss of aqueous

therefore avoided. The iris and lens do not consequently collapse on to the instrument, and the dangers, arising from the wounding of these parts during the operation, are altogether excluded.

CHARLES MANCHÉ.

(12) Wolff describes the fascial layer which spreads out from the superior rectus muscle before the muscle pierces the capsule of Tenon. This fascia goes to be attached to the fornix of the conjunctival sac. Wolff in a case of symblepharon transplanted grafts of mucous membrane and stitched them to this fascia, by this means obtaining a perfect and extensive conjunctival sac, which after six years still shows no tendency to shrink. He states that the anatomical conditions are the same in the lower lid, and such an operation on the lower lid would therefore also be quite feasible.

A. LEVY.

(13) The left eyeball of a Hindoo, aged 45 years, was pushed forwards, outwards, and downwards, by a growth felt through the upper lids. The globe had "come to rest almost on the malar prominence." The eye was stone blind, without perception of light; pupil moderately dilated and fixed; fundus generally hazy, outline of disc indistinct. The tumour, of which the connections are not mentioned, was removed without division of any ocular muscle. It was found to be a spindle-celled sarcoma. One month after the operation the vision of the eye was $\frac{1}{2}$ (!), fundus normal in appearance, movements of the globe perfect. Some slight ptosis and oedema of the upper lid still remained.

H. HERBERT.

(14) Elliot has operated on 39 pterygia within a year, by drawing the apex of the growth downwards into a pocket under the conjunctiva, where it is fixed by a suture brought out below the middle of the cornea. The raw surface left is covered—incompletely in some cases—by a flap of conjunctiva, turned down from above. The author prefers this method of transplantation, because in the ordinary operation the head of the pterygium "often becomes detached from the bed into which it has been sewn."

H. HERBERT.

(15) Chevallereau, in order to obtain a good stump for an artificial eye in any case where there is no actual call for excision, prefers to incise the cornea transversely, tear out the iris, release and deliver the lens. He uses a pressure bandage and no stitches. He calls it an operation "*de luxe*," because (1) an artificial eye must be worn, (2) it cannot be introduced for five or six weeks.

ERNEST THOMSON.

(16) Bruno-Bourdeaux, in a peculiar case of ocular infection associated with increased tension, followed by painless distension of the globe, has practised the following method of forming a good stump. After dissecting the conjunctiva all round and

introducing four sutures into it, Bruno-Bourdeaux ablated the cornea, incised the iris in four places at its periphery, leaving the adherent lens in position : made pressure in the globe and evacuated as much of the fluid vitreous as he thought necessary, washed the parts with cyanide, and closed the wound with the before-mentioned sutures. A good conjunctiva-covered stump was the result, and two years later this was found to have given no trouble whatever.

ERNEST THOMSON.

(18) As the result of an extensive experience, **Suker** has found that this graft—either single or double—is applicable in : 1. Wounds of the cornea and sclera, with or without loss of substance in either. 2. Corneal fistulæ. 3. Serpiginous or perforative corneal ulcers. 4. Moderate corneal or scleral staphyloma. 5. Prolapse of ocular contents. 6. Hernia of the iris. 7. Extensive conical cornea. 8. Untoward conditions in wounds following cataract extraction and the like. 9. As a protection for the cornea in conditions similar to gonorrhoeal ophthalmia.

C. A. O.

(19) **Haberkamp**, after remarking that iridectomy may be out of the question either technically or because of the patient's refusal, and that ordinary paracentesis of the anterior chamber is a poor makeshift, relates two cases in which puncture of the anterior chamber with a fine very hot galvano-cautery gave him good results. In one case the glaucoma had followed a contusion with hyphæma ; it was definitely cured by the galvano-puncture. In the other an old glaucomatous painful eye was saved from enucleation thereby. No statement is given as to how long the eye was thus preserved.

ERNEST THOMSON.

(20) **Grossmann** has employed Holländer's hot-air cautery (*Berl. klin. Woch.*, 1900, Nr. 17) for the relief of several conditions, such as septic corneal ulcers, nævus of eyelid, and, above all, conical cornea. Of the last-named disease, Grossmann reports five cases successfully treated by this means.

(21) **Schoen** returns to his former statement, namely, that iridectomy does not and cannot cure glaucoma. He cites a case of hydrocephalus as evidence of this. Twenty-five years previously he had operated on this case, doing an iridectomy below in both eyes. The condition progressed in spite of this, and a few years later iridectomy upwards was done in both eyes. The iridectomy wound healed perfectly in the right eye, and in this eye the condition steadily progressed to complete blindness. In the left eye the wound healed with the formation of a cystoid cicatrix. This cyst grew larger, but the eye retained its vision, and now, twenty years after the right eye had become blind, has still serviceable vision. For the future in glaucoma he

intends simply to make a corneo-scleral incision and aim at getting a cystoid cicatrix.* A. LEVY.

(22) **Abadie** remains convinced of the value of sympathectomy in glaucoma where other means of treatment have failed. He details three cases which have been kept under observation for seven years, five years, and six months respectively. It may be useful to synopsize these cases. *Case I.* Female, *æt.* 55. Double subacute G. Double iridectomy 1904, instillations of pilocarpine, continued failure of V., with slight + T. Ablation of R. superior cervical ganglion 1898. Improvement of V., which has continued; left eye now hard and sightless. *Case II.* Male, *æt.* 55. Left sclerotomy, 1894 (by another oculist), followed by loss of V. Right sclerotomy 1895, continued use of myotics, gradual failure of V. Ablation of R. superior cervical ganglion, 1900. Without any further treatment V. at present remains as before operation = $\frac{1}{2}$. *Case III.* Male, *æt.* 32 Double G. Iridectomy R. and L. January, 1905. Continued failure of V. D. sclerotomy R. and L., April, 1905, without result. Ablation of right superior cervical ganglion May, 1905. On following day R.T.n. Eight days later slight increase F.V. V.A. improved from $\frac{1}{60}$ up to $\frac{1}{10}$ September, 1905. Amelioration maintained without any other treatment. ERNEST THOMSON.

(23) **Gonzalez** divides the conjunctiva round the cornea and dissects it back to the region of the equator. Then he passes three or four needles through the base of the staphyloma, after the manner of Critchett in his original description, but within the corneal margin. After the excision of the staphyloma the sutures in these needles are drawn through and tied, and the conjunctiva is sutured in front of the corneal wound, forming an additional protection against the escape of vitreous. He quotes the opinion of Panas, that if the incision be carried in front of the insertion of the iris, there is no risk to the patient, either immediate or remote.

HAROLD GRIMSDALE.

(24) **Baudoin**, in removing chalazia by the method of making a small opening only and using digital compression, prefers to make his puncture with the galvano-cautery in order to avoid haemorrhage into the tissue of the lid. He does not use the intermarginal route recommended by Antonelli.

ERNEST THOMSON.

(25) **Jocq's** short paper bears upon the *technique* of the operation. Preference is given to opening the sac, and then packing it with wool wrung out with some lotion, instead of injecting paraffin or some other substance into it. For the local anaesthesia, he uses 1 cc. of cocaine 1%, or of stovain 2%.

PERCIVAL J. HAY

For a very similar suggestion see H. Herbert, *Trans. Ophthal. Society*, Vol. XXIII, 3, abstracted in THE OPHTHALMOSCOPE, 1904, p. 432.—EDITORS.

VIII.—TREATMENT.

(Seventh Notice.)

- (1) Chevalier.—Notes on ocular therapeutics. (*Notes de thérapeutique oculaire.*) *L'Ophthalmologie Provinciale*, T.II, p. 38, mai, 1905.
 - (2) Ovio.—Clinical observations on the use of the actual cautery in ophthalmic surgery. (*Osservazioni cliniche sulla Causticazione ignea a scopo Terapeutico in Oculistica.*) *La Clinica Oculistica*, Nov.-Dec., 1905, Jan., 1906.
 - (3) Bertozzi, A.—On the relative action on the eye and the toxicity of bromide of methyl-atropine and of bromhydrate of homatropine. *Annali di Ottalmologia*, Vol. XXX (1906), fasc. 1-2.
 - (4) Bertozzi.—The action of eumydrin on the human eye. *Annali di Ottalmologia*, Vol. XXXV (1906), fasc. 5-6.
 - (4A) Chevalier, J., and Scrini.—Alypin: a new local anaesthetic. (*Sur le monochlorhydrate de l'alcool benzoyl-I-3-tétraméthyl-diamino-2-éthylisopropylque — l'alypine (nom déposé): nouvel anesthésique local.*) *Bull. général de Thérapeutique*, 15 mars, 1906.
 - (5) Alvarado.—Some clinical facts on the merits of nitrate of silver, protargol, and argyrol. (*Algunos datos clínicos sobre el nitrato de plata, protargol, y argiro.*) *Archivos de Oftalmología Hispano-Americanos*, Abril, 1906.
 - (6) Bruno, Domenico.—Eumydrin and its uses in ocular therapy. (*Eumidrina e sue applicazioni in terapia oculare.*) *La Clin. Oculist.*, May, 1906.
 - (7) Menacho.—Subconjunctival injections of potassium iodide as a treatment for cataract. (*Las inyecciones subconjuntivales de ioduro potásico en el tratamiento de la catarata.*) *Archiv. de Oftalm. Hisp.-Amer.*, Junio, 1906.
 - (8) Le Roux.—Cure of an ulcerated epithelioma of the eyelids by the thermo-cautery. (*Guérison d'un épithélioma ulcére des paupières par le thermo-cautere.*) *L'Ophthalmologie Provinciale*, T. III, p. 45, juin, 1906.
 - (9) Wray, Charles.—Dionine in the treatment of iritis. *British Medical Journal*, July 21st, 1906.
- (2) In this careful paper Ovio gives a full account of the employment of the actual cautery, both in old and modern practice, on the eyes or their annexes. Ovio praises, from his own

experience, the method of Cusco, who treats cases of cicatrical entropion from trachoma, by making an incision through the skin and orbicularis, about 4 mm. from the lid margin, and holding the lips of the wound apart, burns the tarsal cartilage deeply. For the rest, the use of the cautery is nowadays mostly confined to the globe. Here it is very useful for many conditions. In the treatment of corneal ulcers it is invaluable. To ulcers of small size, it may be applied all over; to ulcers with a clearly spreading edge, and to ulcers of large size, the edge alone should be attacked. In ulcers of large extent, with much hypopyon, the use of the cautery to the whole would weaken the membrane and allow staphyloma. The best method of treatment is to burn the margin deeply, or to apply the cautery superficially to the whole extent, in either case following up the cautery by immediate paracentesis. Perforation of the cornea with the cautery, he does not advise. Ovio adopts peritomy by cauterisation; but recommends that the surgeon should make the "incision" by repeated touches with the cautery, and not try to draw a line round the cornea. As regards the instruments, the galvano-cautery is the best and most convenient, but the common handles are ill-balanced and it is difficult to procure one which is comfortable to handle. Ovio figures one less clumsy than most.

HAROLD GRIMSDALE.

(3) After having determined by intra-venous and subconjunctival injections in rabbits the co-efficient of toxicity of bromide of methyl-atropine and bromhydrate of homatropine, in relation to the neutral sulphate of atropine, Bertozzi studied in normal human eyes the action of two substances upon the size of the pupil (Haab's pupillometer) and upon accommodation. The following represent his conclusions:—

The bromide of methyl-atropine yields a maximal dilatation of the pupil; it accordingly appears to act both by paralysis of the sphincter and by excitation of the dilatator—that is to say, by the same mechanism as atropine. Its action, however, is less durable than that of atropine and involves the accommodation not at all. On that account it should be selected when it is desired merely to facilitate ophthalmoscopic examination. Although experimentally the toxic equivalent of the bromide is much greater than that of the neutral sulphate, still in practice the former never produces a toxic manifestation.

The bromhydrate of homatropine induces a medium mydriasis, which augments to the maximum after cocaine has been applied; accordingly, it acts by paralysis of the sphincter, without exciting or by exciting very slightly the dilatator fibres (stronger solutions of 2 % give rise to a maximal dilatation). Admitting, as appears to be proved, that the homatropine in

0·5% to 1% solution does not act upon the dilatator, it is obvious that one might utilise this collyrium in making the differential diagnosis between spastic myosis and paralytic myosis, a question liable to arise at any moment in the ocular manifestations of nervous diseases.

A. ANTONELLI.

(4) According to Del Monte, eumydrin deserves in ocular therapeutics the first place amongst the substitutes for atropine, and might even replace the latter in certain cases—for example, in children and old persons, and where there exists an intolerance towards atropine. It is preferable to homatropine as facilitating ophthalmoscopic examination, since it is able to give, when used in equal strength, a dilation of the pupil which is at once greater, more rapidly induced, and less persistent, and which can be quickly compensated by myotics. Kostin, on the contrary, found that the action of eumydrin on the pupil and the accommodation too prolonged. After having experimented with 0·25%, 0·5%, 1%, 2% and 5% solutions upon young and healthy eyes, Bertozzi has reached the following conclusions: eumydrin produces marked mydriasis, but one which is almost always capable of being augmented by the associate action of cocaine. The commencement, the degree, and the duration of the dilation of the pupil stand in direct relationship with the strength of eumydrin used. Whatever be the strength of the collyrium, eumydrin invariably produces paresis of accommodation (more or less intense), which may sometimes last even a little longer than the mydriasis. Myotics instilled when the mydriasis produced by eumydrin is greatest set up a slight and transitory reduction in the diameter of the pupil, without, however, exerting any real influence on the total duration of the mydriasis or the accommodative paresis.

A. ANTONELLI.

(4A) Chevalier and Scrini discuss the chemical composition of stovaine and of alypin, and then pass on to describe the pharmacological properties of the last-named body. It is more toxic than stovaine, especially when injected into the veins, a point on which the authors lay particular stress. On animals it appears to act as a paralysing agent on the central nervous system, after a preliminary period of excitation. As regards the eye, Chevalier and Scrini consider that the new anaesthetic does not present any marked practical advantages over those possessed by cocaine or stovaine. They speak of having seen the local hyperæmia produced by alypin last for two hours after the agent had been applied to the eyes of healthy subjects. A 1% solution has no marked action on the pupil, the accommodation, or the intraocular pressure; but as Joubeline (*Rousski Wratch*, December 31, 1905) has already pointed out, a 5% solution may give rise to a moderate dilation of the pupil, lasting for about half-an-hour.

Alypin anaesthesia is rapid, complete, and persists about eight minutes. Employed as an adjuvant in cases of conjunctivitis, iritis, or keratitis, alypin appears to have no qualities not possessed by stovaine. The authors sum up by saying that alypin is a local anaesthetic whose toxicity is less than that of cocaine, but greater than that of stovaine. The mechanism of its action is identical with that of the other two local anaesthetics, provoking, as it does, by contact, diminution or abolition of the vital properties of the tissue cells. Its effect upon the nervous system shows itself especially by phenomena of paralysis and of generalised analgesia; convulsive phenomena are more attenuated with alypin than with stovaine or cocaine. Employed in infiltration, it has no advantages over stovaine. It cannot be recommended for medullary anaesthesia, having regard to its toxic action in the veins, and its energetic action on the medulla when it is rapidly introduced by means of the general circulation.

S. S.

(5) This is an answer to Darier's article in *La Clinique Ophthalmologique* for Jan. 25th, 1905, and in THE OPHTHALMOSCOPE for Jan., 1905. Alvarado is of opinion that the new salts cannot replace the inorganic, either in the treatment or the prophylaxis of gonococcal ophthalmia; although on the latter point he is less certain. He is not moved by either the experiences or the arguments of Darier.

HAROLD GRIMSDALE.

(6) Eumydrin is a methylnitrate of atropine. It is a white, odourless powder, readily soluble in water. It has not any toxic action on the central nervous system, but retains the action on the peripheral nerves. It preserves the therapeutic effects on the intestine and the sweat glands. Its action is less rapid and energetic and of shorter duration than that of atropine.

HAROLD GRIMSDALE.

(7) The paper of Verderau, which was recently reviewed in this journal, has led Menacho to undertake the treatment of certain patients, suffering from cataract, by means of subconjunctival injections of potassium iodide. He comes to the conclusion that none of his patients were in any way affected by the drug, and attributes the improvement observed by Verderau to the variations which may very frequently be observed in the course of cataract.

HAROLD GRIMSDALE.

(8) Le Roux records a case of ulcerated epithelioma of the eyelids treated by cauterisations repeated at intervals of a week. The ulcer, which was as big as a franc piece and situated in the position commonly occupied by rodent ulcers, was healed at the end of six weeks, and seven months later there had been no recurrence. The author is of opinion that when X-rays or radium is not available, satisfactory results can be obtained

from the treatment of cutaneous epitheliomata by cauterisation, provided there is no glandular enlargement, if the ulcers are not too large, too deep, or growing too rapidly. R. J. C.

(9) Wray reports myosis, following the application of 5% dionine in a case of serous iritis, where the pupil was semi-dilated by atropine.

IX.—MISCELLANEOUS.

Carra, P.—The Navy and acuteness of sight. (*La Marine et l'acuité visuelle.*) *Recueil d'ophtalmologie*, XXV (1903), p. 629.

Remy.—The applications of the diploscope. (*Applications du Diploscope.*) *Recueil d'ophtalmologie*, XXV (1903), p. 635 and 693.

Janet, Pierre.—A disturbance of vision produced by exaggeration of the binocular association. (*Un trouble de la vision par exagération de l'association binoculaire.*) *Annales d'oculistique*, T. CXXX, 1, 1903, p. 29.

Re, F.—Upon the reflex visual image. (*Della immagine visiva riflessa.*) *Archivio di Ottalmologia*, Vol II (1903), Fasc. 3-4, p. 123.

Re's study in physiological optics may be epitomized thus. When we fix a surface illuminated with white or coloured light with one eye for a long time, the chemical and histological modifications of the retina affect also the retina of the other eye, which has remained covered during the experiment. Upon opening the latter eye, the subject perceives the accidental image relative to the object or the colour fixed by the other eye. This secondary reflex visual perception is purely cortical, but the cortical cell would not perceive it if the visual tension were not brought into play by the occlusion of the eye first influenced. By these means, in fact, the observer manages to separate the perception of the functional activity of the centripetal nervous paths from that of the centrifugal paths. The image belonging to the eye which is at rest represents a propagation of the retinal modifications of the eye influenced, transmitting across the arc of neurones connecting the two retinae, a propagation afterwards perceived by way of the neurones, the retina influenced secondarily and the cerebral cortex. The secondary reflex image is constantly negative. It may be provoked even by a very feeble light; it appears so much the more

quickly the more intense the light ; it is retarded by an unduly long fixation ; it varies in position according to movements of the eye, its size according to movements of the screen, and its form according to the object fixed. A. ANTONELLI.

Truc, H., and Chavernac, P.—*The Ocular Hygiene of the Montpellier Parish Schools. (L'Hygiène oculistique des Ecoles communales à Montpellier.) Revue générale d'ophtalmologie*, mai, 1904.

Truc and Chavernac summarise their eight years' work on this subject, the full details of which have already been published in Nos. 43 to 51, 1903, and in Nos. 1 to 11, 1904, of the *Montpellier Médical*. The work is divided into two parts ; the first deals with what has already been done on this subject, with statistics, and with the practical conditions of a model school ; the second part gives an account of the close inspection of the Montpellier schools during eight years. This may be summarised as follows : (1) Division of scholars into normal and abnormal by means of test types. (2) Full examination at the eye clinique of the abnormals, and report to the parents, giving advice. (3) Examination of school buildings. (4) Investigation by an ingenious photometric method of the illumination of all the tables in each school, and determination of the mean, both in natural and artificial light. (5) Examination of tables and benches, blackboards, diagrams, and book type. (6) School hours. As a result of their investigations the authors recommend systematic inspection of schools and scholars by oculists in large towns and elsewhere by practitioners who have some ophthalmic knowledge, the reports so obtained to be collated by a departmental inspector.

ERNEST THOMSON.

Knapp, Arnold.—*Hereditary optic atrophy. Archives of Ophthalmology*, Vol. XXXIII, No. 4, July, 1904.

An account of a series of cases occurring in three generations, the first of which showed central scotoma with normal periphery of fields, the second and third having peripheral contraction without central scotoma. In the second and third generations two females were affected.

Clarke, Ernest.—*Diseases of the Eye. Polyclinic*, January, 1904.

The cases demonstrated by Clarke at the Medical Graduates' College included (a) conical cornea, and (b) cyclitis.

Pergens.—Historical notes upon the retinal image and the papilla nervi optici. (*Geschichtliches ueber das Netzhautbildchen und den Opticuseintritt.*) *Klin. Monatsbl. f. Augen.*, Februar, 1904, p. 137.

This work is unsuited for treatment in a short abstract, and should be read in the original. A. BIRCH-HIRSCHFELD.

Deschamps (Grenoble).—On the temporary partial incapacity for work which results from wounds of the eye. (*De l'incapacité partielle temporaire de travail à la suite des blessures de l'œil.*) *La Clinique Ophtalmologique*, 10 juillet, 1904.

Deschamps draws attention to the fact, important from the medico-legal standpoint, that wounded eyes which finally will have perfect vision, suffer for a variable time after healing from a constantly diminishing series of such symptoms as photophobia and ocular fatigue. "In wounds of the eye, besides permanent total incapacity, permanent partial incapacity, and temporary total incapacity, there often exists a temporary partial incapacity, characterized by a marked difficulty of vision, not sufficient to prevent the patient from doing his work, but sufficient to render the work difficult and less remunerative for the time being." This fact ought to be taken into consideration when the question of compensation arises.

ERNEST THOMSON.

Stengel, Alfred.—The early diagnosis of Arterio-sclerosis. *American Medicine*, January 2nd, 1904.

Arterio-sclerosis in its fully developed stage can in most instances be recognised with no great difficulty, but a positive determination of the existence of the earlier stages is extremely difficult, although essential if the progress of the disease is to be controlled. The changes are probably always more or less uniformly distributed throughout the vascular system. As causes of the condition, Stengel gives mental anxiety and heavy work, excessive exercise, overfeeding, typhoid fever, alcoholic intemperance, syphilis, and plumbism. In some cases there exists a family tendency to arterio-sclerosis. Stengel pleads eloquently for the early recognition of a condition that more frequently perhaps than any other ends in death. The early signs include heightened blood-pressure, lengthening of the first, and accentuation of the second, sound of the heart, increased tidal wave in sphygmographic tracings, and symptoms such as loss of vigour, change in colour, dryness of the skin, and alteration in the quantity and specific gravity of the urine. Finally, the author calls attention to the possibility of an early

diagnosis by ophthalmoscopic examination. Thickening of the retinal arteries, he states, is evidenced by the high light of the arterial image and the compression of the veins where the latter are crossed by the arteries. These ophthalmoscopic peculiarities may be found very early in the course of arterio-sclerosis.

S. S.

Goldzieher, W. — A case of congenital maldevelopment of the heart with hyperglobulosis in connection with haemorrhagic iridocyclitis. (*Ein Fall von angeborenem Herzfehler und Hyperglobulie in Verbindung mit Iridocyklitis haemorrhagica.*) *Centralbl. f. prak. Augenheilkunde*, September, 1904.

Goldzieher describes the case of a female patient, aged 9 years, who suffered from either a patent foramen ovale or a deficiency in the inter-auricular septum, who suddenly developed pain and inflammation of one eye. In this eye the conjunctiva is markedly injected, the veins standing out full and tortuous; ciliary injection is also present. The cornea is clear, the iris discoloured a dirty red-brown; pupil, medium-size, fixed; no synechiaæ present; no red reflex can be obtained. Eye-ball is of stony hardness (+3), very tender, and absolutely blind. The right eye is normal, with good vision, clear media, and emmetropic. Ophthalmoscopically, one obtains a beautiful picture of cyanosis retinæ. The left eye gradually shrank, and with the shrinking the haemorrhages stopped. Operative interference was, of course, out of the question.

A. LEVY.

Nacht, A. — Symptoms in meningeal disease, with special reference to the ocular manifestations. (*Die bei Erkrankungen der Meningen beobachteten Erscheinungen mit spezieller Berücksichtigung der okularen Symptome.*) *Zeitschrift für Augenheilkunde, Ergänzungsheft*, 1904.

Nacht in this paper brings together the most important literature of recent years.

A. LEVY.

Roure. — On a migratory affection of the episcleral tissue. (*Sur une affection migratrice du tissu épiscléral.*) *Annales d'oculistique*, T. CXXXII, p. 117, août, 1904.

Roure describes a case in which he found in the upper-outer quadrant of the globe an inflamed sector, with clearly defined edges, having its apex 4 mm. broad on the corneal margin and its base in the superior *cul-de-sac*. This area was raised 2 mm. above the surrounding conjunctiva, was of a red colour, a lardaceous appearance, and a rather hard consistence. In the

course of eight days all the visible parts of the eyeball became in turn affected in such a way that this area appeared to travel around the cornea, retaining its size unaltered until it reached the place where it started, when it gradually died away. Pain, abnormal secretion, and glandular enlargement were absent throughout, and the vision was not affected. Roure considers that the case was of microbic origin, and suggests that the best treatment for it would have been an antiseptic subconjunctival injection.

R. J. C.

Comba. — **Polyarthritis secondary to conjunctivitis in a newly-born child.** (*Poliartrite blenorraica secondaria a congiuntivite in un neonato.*) *Rivista di Clin. Ped.*, June, 1904.

Comba's case was in an infant, aged 37 days, whose mother, a primipara, suffered from an abundant vaginal discharge, and died twenty-three days after the birth of the baby. The child developed ophthalmia neonatorum, associated with gonococci. There was polyarthritis, affecting the right wrist and knee and then the left elbow. The parts were painful, although the skin was not reddened. Gonococci were found in fluid withdrawn from the swollen knee. The case ended in complete cure.

MacCullum, W. G., and Cornell, W. B.—On the mechanism of exophthalmos. *Medical News*, October 15, 1904.

MacCullum and Cornell have made an experimental study of the phenomena produced in animals by disturbance of the circulation and by stimulation of the cervical sympathetic. Their conclusions are two in number, namely : (1) obstruction to the outflow of blood from the veins of the orbit produces at once exophthalmos, which is relieved by the establishment of a collateral circulation ; (2) entirely independent of any circulatory changes is the exophthalmos produced directly by stimulation of the cervical sympathetic nerve. This protrusion is due to the peristaltic contraction of the orbital muscle.

Bickerton, Reginald E.—Retinal changes one week after contusion of the eyeball. *Trans. Ophthal. Society*, Vol. XXIV (1904), p. 258.

A lad of 19 years was struck in the eye by a football. When seen by R. E. Bickerton, six days after the accident, V. = 6/60 (barely), and a large patch, dotted over with fine pigment and appearing white in places, was found extending from the

disc into the upper-outer quadrant of the fundus. The retina below this area was œdematosus, thereby proving the recent nature of the lesion.

Werner, L.—**Melanotic epibulbar sarcoma; enucleation; no recurrence in six years.** *Trans. Ophthal. Society, Vol. XXIV (1904), p. 219.*

Werner excised the eye of a woman, *ætat* 55 years, on account of a recurrent melanotic sarcoma (18 mm. by 12 mm.) occupying the ciliary region at the outer side of one cornea, where it formed a nodulated, brownish-black mass, of quadrilateral shape, overlapping the edge of the cornea. The patient was alive and well six years after the operation. *Microscopical examination.*—The tumour was made up of large, flat-looking, endothelioid cells, closely packed together. It included a large amount of pigment, not of haematogenous origin. An area of hyaline degeneration was present towards its centre. The sclera was not invaded by the growth, which was, in fact, purely epibulbar. Discussing the treatment of these growths, **Werner** argues against enucleation of the affected eyeball, at all events in the earlier stages. Under such circumstances he is in favour of primary abscission followed by cauterisation. The radical operation is, of course, indicated in complicated cases, e.g., when neighbouring parts are involved, when there is perforation of the globe, when vision is seriously impaired, or, finally, when one is dealing with a recurrence.

S. S.

Bettremieux.—**Xanthopsia in a patient with siderosis. (Xanthopsie chez un candidat à la sidérose.)** *L'ophtalmologie provinciale, février, 1905.*

Bettremieux records the case of a patient who had an accident followed by a vitreous haemorrhage which cleared up, leaving the vision normal, except that white objects appeared, to the injured eye, to have a rusty colour. Eighteen months later the eye had become blind from siderosis. **Bettremieux** considers that the xanthopsia was an early symptom of siderosis and not due to remnants of the blood-clot.

R. J. COULTER.

Dransart.—**The notation of astigmatism. (Notation de l'astigmatisme.)** *L'ophtalmologie provinciale, février, 1905.*

A reprint of a communication to the Lucerne Congress, recommending the old plan of taking the vertical axis as 0° and the horizontal as 90° , the intermediate axes being numbered according to their inclination inwards or outwards from the vertical.

R. J. COULTER.

**Babinski, J. and Toufesco, Mdlle. S.—“Blue disease”—
Cyanosis retinæ—left infantile hemiplegia. (Maladie
bleue — Cyanose des rétines — Hémiplégie infantile
gauche.) *Ann. de Méd. et Chir. infantiles*, mars, 1905.**

Babinski and Toufesco, after glancing at the cases of cyanosis of the retina described by Liebreich (1863), Knapp (1870), Leber (1877), Litton (1883), Hirschberg (1883 and 1904), and Nagel (1890), relate the case of a child, aged 10 years, who was the subject of an interventricular communication and a narrowing of the pulmonary artery, associated with the remains of an infantile hemiplegia. There was cyanosis of the skin, and along with this, dilated episcleral veins, and pronounced cyanosis of the fundus oculi. The retinal arteries were dilated and sinuous, whilst the retinal veins were of a dark-blue almost violet hue.

S. S.

**Wharton, John.—Tumour of the cerebral hemisphere
with hemianopsia. *Ophthalmic Review*, April, 1905.**

The patient was a female, aged 23 years, who had for three years had suffered from severe headaches and during the last six months from attacks of vomiting almost every morning. The first attack had followed a fit, but nothing localising could be made out from the parents' description of it. The father had optic atrophy, but the rest of this family were healthy and there was no history of syphilis or of tubercle. The patient was anaemic and drowsy, with intense double optic neuritis and a few small haemorrhages in the discs. The vision was R. $\frac{1}{8}$; L. $\frac{1}{4}$. She had a severe headache but no other nerve affection; the lungs and heart were normal. There was incomplete left hemianopsia and considerable contraction of the right field. The vision of the right eye got rather worse and so did the optic neuritis. The symptoms pointed to the existence of a neoplasm behind the corpora quadrigemina and somewhere in the right cerebral hemisphere. She died three weeks after admission into hospital.

The *post-mortem* examination revealed the presence of a gliomatous mass, without cysts and unencapsulated, infiltrating the anterior two-thirds of the lower temporal convolutions on the right side. The growth spread from there and extended inwards and backwards, so as to involve the lower portion of the right internal capsule and the lower border of the lenticular nucleus; the optic thalamus was normal.

C. D. M.

REVIEW.

Das Melanosarkom als einzige Sarkomform des Uvealtraktus. Von Dr. FRANZ SCHIECK. Wiesbaden: J. V. Bergmann. 133 pp., with three coloured plates and 35 figures in text. 1906.

In this monograph, Schieck defends the thesis that all sarcomata which affect the uveal tract are modified melanomas. The work is divided into three parts; the first is occupied with the detailed examination of cases of so-called white and pigmented sarcomata. In this the author shows that it is always possible to discover in these tumours chromatophores in some stage or other of development. In the second part he shows that the unusual multiplicity of forms in this region depends on several factors—(1) the stage of development of the chromatophores, (2) the part played by the vascular system, (3) the form of the pigment, and (4) the presence or absence of degenerative processes. The chromatophores have a strong tendency to arrange themselves along the blood tracks, and this has an important bearing on the mode of formation of the tumour. The third part is a summary of the preceding literature. The author supports his views by evidence drawn from the growth of the chromatophores.

HAROLD GRIMSDALE.

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ORIGINAL COMMUNICATION.

SOME HEREDITARY DISEASES OF THE EYE.

BY

EDWARD NETTLESHIP.

(Concluded.)

Of other eye diseases that are apt to prevail amongst near kinsfolk, reference should be made to glaucoma, choroiditis, diseases of the cornea, and nystagmus.

Glaucoma has been known to be rather frequently a family disease since von Graefe's time, if not before.* Probably the inheritance of primary glaucoma means in some cases an

*A. von Graefe, *Archiv für Ophthalmologie*, Bd. XV, 3 Heft, p. 227-229. 1869.

inherited disproportion in size between cornea, ciliary area, and lens; in other cases inheritance of a weak *lamina cribrosa* with a steep physiological cup. In others verging towards buphthalmos or secondary to *ectopia lentis* the term glaucoma should be correspondingly qualified. In regard to the *lamina cribrosa* we require systematic records of the physiological cup in the eyes of non-glaucomatous members of glaucomatous families. I do not know whether in such persons the cup is apt to be larger and deeper than usual. I mention below one or two cases (52, 128, etc.) that support such a view. If the sclera as a whole were weak we might get myopia developing late in life instead of, or in addition to, the glaucoma, and I believe this does occur.

Plenty of cases of primary glaucoma are published where two or more siblings have suffered, and a fair number in which the disease has attacked parent and child or children. Graefe knew of the disease in three or four generations, and I have seen and operated upon it in three generations, but I am not aware that it has often been traced through more than two. If this be so it may be because the disease is but moderately common, seldom attacks the young, and when very chronic, is not always known to the descendants by its true name.

In Harlan's case of glaucoma in five generations, a glaucomatous condition came on at about 16 to 19 years of age in several members of a family of five generations; in one case only did the disease occur as late as 35 years. The disease was diagnosed as chronic glaucoma and some of the patients underwent iridectomy with success; the very early age of nearly all the victims raises the suspicion that the glaucoma may have been secondary to a low degree of either buphthalmos or *ectopia lentis*.

I think a similar comment may be made upon one of R. Sattler's cases (1905).

One of the most extensive in two generations is Kummer's case (1871): in the first generation 2 sisters and 2 brothers suffered in a childship of 6; of the 16 members of the next generation 4 men and 1 woman were attacked; in all 9 cases in 22 persons.

Mules saw advanced chronic glaucoma in a man, aged 49, and in his two eldest sons, aged 18 and 16 years respectively. Priestley Smith has met with glaucoma, beginning in a father, *æt.* 42, and a daughter, *æt.* 28 (*Ophthalmic Review*, Vol. XIII, 215, 1894).

In a case of my own, referred to above as affecting three generations, large physiological cups were noted in a young man of 21, with very low myopia. Six years later nothing further had occurred, and the myopia had not increased.

His sister, emmetropic, had very large physiological cups when first seen at about 20 years of age. Before she was 30 she had advanced chronic glaucoma in both eyes.

The mother of these two, with hypermetropia about 3 D., deep bowl-like excavations, full vision, and no symptoms at the age of 42, had advanced chronic glaucoma by the time she was 48.

Her father (grandfather of the first two) had advanced chronic glaucoma in both when he was 72, the disease being then of about one year's standing. Refraction not noted. All these three were operated upon with complete success.

In another there was chronic glaucoma in a man aged about 35; perfectly normal eyes in his brother (two years his senior, but seen at *æt.* 46); deep overhanging physiological cups and history of rainbows for many years in a sister five years senior to the glaucomatous brother, and seen *æt.* 49; I do not know her subsequent history. All these three were somewhat hypermetropic, the normal (middle) brother the least so.

I know of a case in which four of a childship, two sisters and two brothers, all suffered from glaucoma of varying type after the age of 55, and all became blind in spite of operation; a son of one of the sisters had very chronic glaucoma beginning at about 45.

In another case (10.102 and 11.69) chronic glaucoma began in the father at or about 60. He was operated upon and kept a little sight till he died at the age of 91. He had nine children as follows (it should be noted that he and his wife were not cousins):—

1 (Male). Chronic glaucoma began before he was 40; sclerotomy about 1883; still sees a little at *æt.* 63 (1906).

2 (Male). Liable to attacks of pain and redness of eyes called "gout" (1906).

3 (Female). Normal.

4 (Female), *æt.* about 55 (1906). Both eyes operated on for quiet glaucoma some time ago; result said to be good.

5 (Male), *æt.* 54½ (1906). Right eye operated on for chronic glaucoma last January, and has done well; left eye commencing.

6 (Female). Operated on by another surgeon about same time as No. 5; the iridectomy may have been precautionary.

7 (Female). Has been examined lately and reported normal.

8 (Female). Normal.

9 (Male). Normal.

The father had brothers and sisters and some of them had issue, but nothing is known of any eye affection in any of them.

I could give many examples of glaucoma in brothers and sisters. Anticipation is very marked in some of the cases of glaucoma where heredity can be proved, as in my case of three generations,

and in the cases of Mules, Priestley Smith, Müller-Kannberg, and, I believe, several others of my own unpublished; von Graefe spoke of it in 1869. Although I think there is reason to believe that myopia in the child may to some extent take the place of glaucoma in the parent, the general enlargement of the sclerotic by no means always acts as an efficient safety valve, the disc being often excavated too, so that both myopia and glaucoma ensue. I have not gone at all fully into the subject of hereditary glaucoma, and am aware that I have not referred to nearly all the literature.

Iritis is not, I think, often a family complaint, and when so is usually an expression of family gout. I have seen a few cases, but have not kept count of them all.

A lady whom I saw in 1898 when she was 52 years, had suffered from half-a-dozen attacks of extremely painful iritis since the age of 40. Her father, who suffered from acute gout in the feet and hands, had had three attacks of violent inflammation of the eye, called "gout in the eye." His father was also a great sufferer from gout (48.168).

A lady became blind of her right eye after repeated iridectomies for what was considered to be glaucoma in the early days of operation for that disease. She was then 29 (1857); when I saw her at *aet.* 67, the eye was rather soft and the lens opaque, and no one could say what the original disease had been. When she was about 57 the left eye, good till then, passed into sclero-kerato-iritis of the well-known recurring form, and became much damaged by opacity of the cornea.

This lady's daughter had inflammation of her left eye when aged 14 (1875), and Mr. Bowman feared that iridectomy would be required. I saw her in 1899, when she was 38, and found very evident posterior synechiaæ in this eye. The other eye was healthy. When she was born her mother would be 33, *i.e.*, in the period of active disease of her first affected eye (56 a., 51.1, and 35.254.).

In 1900 I saw a single lady, *aet.* 48, with a well-localised mound of episcleritis of the right eye. Her mother had chalk gout in the hands. A sister of her mother (the patient's maternal aunt) had gout in the hands and eyes, and one eye was blinded by it. The mother of these two (patient's grandmother) had very bad gout. The patient's youngest brother had what was called gout at the age of one month! and died from the effects of drink when he was 30 (54.63).

Choroiditis of certain forms is apt to occur as a childhood disease, and occasionally can be proved to be hereditary, as in the case that Mr. R. W. Doyne has recorded, in which choroiditis in the central region was found by him in four adult females of a

family of eight children, of whom seven were living. There was a history of bad sight in their father and his brother and in the mother of these two, *i.e.*, in three generations (*Trans. Ophth. Soc.*, XIX, 71).

I have seen several examples of central senile choroiditis or choroido-retinitis—sometimes of the dotted choroidal type known as “Tay’s choroiditis,” sometimes more or less characteristic retinitis circinata—in brothers or sisters.

In 1896 I saw a gentleman, aged 72, whose sight had been going off at least two years. He had central retino-choroiditis or retinitis circinata in each eye. Three years later his sight was scarcely any worse. He had had eight children, of whom five were living; three had died from diabetes. He told me that a sister, two years his senior, had partly lost her sight from “disease at the back.” I did not see her. (37.200.) But five years later (1901) I saw another sister, then 65, *i.e.*, 12 years junior to the brother above mentioned, with a mixture of Tay’s choroiditis and epithelial denudation at the centre in both eyes; right vision $\frac{6}{60}$, left $\frac{6}{6}$ barely. The mother of these three became blind as an old woman, “not from cataract.” (55.65.)

In 1897 and 1900 I saw Tay’s choroiditis succeeded by marked retinitis circinata with epi-choroidal (or sub-retinal) deposit, in an old gentleman of 71—75. (42.82.) In 1898, his brother, older by two years, came for glasses, and seeing $\frac{6}{6}$ with each eye with 1.5 D. But he had abundance of Tay’s dots in both eyes, of larger size than usual (47.112).

A lady, aged 47, had (in 1898) several groups of Tay’s dots on the temporal and nasal side of the optic disc in her left eye; none in right (47.185). One of her brothers, four years her junior, had many scattered dots, like Tay’s choroiditis in his right, when 38, and three years later peculiar dull haze of the central retina in the left, apparently commencing retinitis circinata. He was free from organic disease, but was a hard worker, was in many respects senile, and was compelled to give up business when 43 from irritability and want of strength (27.131).

In 1893, a lady, of about 60, had dusky haze of the retina at the y.s. area in the left, and an area of partial atrophy of choroid at the corresponding part of the right. There were about 9 D. of My. In 1894 the haze in the left had given place to an irregular area of partial atrophy of choroid, similar to the older change in the right. In 1898 she was no worse (59. 31.19). Her eldest son was under the care of Mr. Priestley Smith (in 1881) for disseminated choroiditis with some retinal haze at the age of 16, and I saw him also. The choroiditis was in separate patches, and chiefly in the central region. Mr. Priestley Smith observed that he had at times a very slow pulse. I saw

him again when he was 32, and found no increase of the choroidal disease and vision very little damaged ; the R. M. 15. L. Em. ; the pulse 56 only, and the patient suffering from bleeding piles. It was only at this date that I learnt he was a son of the previously-mentioned patient. His mother would be about 50 when the son's choroiditis occurred, and say 35 when he was born. He presented no signs of hereditary syphilis.

A sister of the first patient (aunt of the lad just mentioned) with 8 D. of My. suffered from some haemorrhage and oedema of the central retina in the left eye when she was 58 (1894), and three years later (1897) from similar central changes in the right eye, leading first to white spots and finally to a fibrous-looking band in the retina. She was rather junior to the first patient. No albumen or sugar at any time. (6.2 and 44.51). (Previously published.)

In Mr. Hutchinson's original paper on central senile choroiditis, three of the patients were sisters (*Ophth. Hosp. Reports*, VIII, p. 238).

There is occasionally some connection between choroiditis and progressive disease of the central nervous system, both conditions being found either separately or together in several members of the same childship.

Thus, a man, of weak intellect with occipital meningocele is blind from extreme choroidal atrophy with myopia about 10 D. He is the ninth of twelve children. No. 6 is blind, but intelligent ; details of eyes not known. No. 8, *aet.* 52, is epileptic, with one eye blind and the other defective. Several of the others are "short sighted," but in spite of advice cannot get satisfactory glasses. (25.5.)

Dr. Rayner D. Batten has recorded and figured a case of abundant white spotted choroiditis in a young woman aged 25, who was the youngest of a family of 24, of whom 19 died early of some obscure brain disease.

This case suggests comparison, not in appearance or minute pathology, but possibly in origin and nature, with the peculiar infantile disease of retina and nervous system ending in death, originally described by Mr. Waren Tay and now known as amaurotic family idiocy.

In another example the eldest of three children, all females, is alive and well *aet.* 36. The second was paraplegic for three years from "softening of the cord" (not spinal caries) and died at 25, the immediate cause of death being acute tuberculosis. The third, seven years younger than No. 1, complained of her sight when about 28-29, the failure beginning with flashes and coloured (violet) light. I saw her six months later (June, 1894) and found extensive choroiditis in patches with pigmented

centres and fibrous tissue on some of them ; the y.s. destroyed in right, free in left, right vision $\frac{6}{7}$, left $\frac{6}{7}$ partly. Retinal vessels and O.D. normal in both. The father of the above-mentioned patient was hypochondriacal, and had a brother and a sister who died insane. The mother of the patient, sound in body and mind, had a brother who died at 71 from paraplegia and "softening of the brain," a sister who died from paraplegia from disease of cord, and a brother still alive with advancing paraplegia. No note as to consanguinity of my patient's parents : and syphilis not enquired for (P. 30, 238).

Mr. Hutchinson has published several cases of choroiditis and choroido-retinitis affecting in each instance more than one of a childship, associated with chronic progressive paralysis, and so far as could be ascertained, independent of syphilis. In the most remarkable of these cases the parents, not consanguineous, had nine sons and then one daughter ; Nos. 5 and 8 (males), died of small-pox and whooping cough respectively in early childhood ; the other eight grew up, and of them, four, viz., Nos. 1, 2, 7 and 9, remained quite well, two of them marrying and having several healthy children. In the remaining four (Nos. 3, 4, 6, and the daughter No. 10) extensive choroido-retinal atrophy with some retinal pigmentation, and apparently sclerosis of choroidal vessels, came on gradually in childhood ; in the three sons this was coincident with progressive paraplegia and some mental failure ; and in all four there was arrested development of the sexual functions. The mother was healthy and the father was believed to be so until his sudden and quite unexpected death at 52, probably from cerebral haemorrhage (*Archives of Surgery*, XI, No. 42, p. 118, April, 1900, with ophthalmoscopic plate). The ophthalmoscopic drawing in this case is very like the drawing of the condition described by Fuchs (in *Archiv für Augenheilkunde*, XXXII, p. 111, 1899) as *atrophie choroideæ et retinæ gyrata*.

Family Disease of the Cornea may take the form of congenital opacity, especially of the marginal part, in mother and child or children ; or of buphthalmus in several siblings ; of conical cornea* ; and the peculiar very chronic or stationary "nodular keratitis" and "reticular keratitis," of which conditions examples have been recorded by various observers abroad, and in this country especially by Marcus Gunn and Holmes Spicer. The reticular form, at least, may affect members of several generations. Doyne and Stephenson have published a remarkable example of extensive, bilateral, slowly progressive opacity of cornea running through three generations.

* Cases of hereditary conical cornea have been communicated to me by Mr. W. H. H. Jessop and Mr. W. G. Laws.

Nystagmus has often been observed in several members of a family and in more than one generation, and several extensive genealogies have been published, notably, as regards our own country, by Lloyd-Owen, Angus McGillivray, Ernest Clarke, C. O. Hawthorne, myself, and others. In several of these "mother's son" inheritance has been well marked. The subject is complicated and difficult, and I have not yet studied it fully. The first point in examining such cases should be to find out whether there is any congenital cause of defective sight such as might produce the oscillation. It is just here that some of the published cases are incomplete, attention having been concentrated on the nystagmus and its family history, to the neglect of the probably underlying cause, inheritance of some defect in the eye itself. It is much to be desired that in all future records of family nystagmus the refraction and visual acuteness with correction should be carefully noted, and also (in reference to partial ocular albinism) the colour of the iris and fundus, and the time after birth at which the oscillation of the eyes was first seen. In some kinds of congenital amblyopia capable of causing nystagmus, e.g., albinism, the nystagmus is certainly not always, if ever, present at birth, but comes on later, probably in the course of months. If nystagmus is really present at birth, the eyes themselves being perfect, we must assume a cerebral (oculo-motor) cause, and the hindrance to fixation, due to the rapid movements of the eyes, may fairly be credited with whatever defect of sight is discovered later in life. I feel sure, however, that the more accessible causes of hereditary nystagmus, those residing in the eye itself, have not as yet received the attention they deserve.

Finally, I may put in a word about **note-taking in hereditary cases**. This should be as complete as possible, and include, besides information as to all parents and all consanguineous marriages, the *total number* of pregnancies of each mother, the sexes, order of birth, whether affected or not, ages at death of all that die, miscarriages and stillbirths in their proper order. The pedigree should also, when possible, not be limited to the particular branch of the tree in which the disease occurs, but include the other parts of the stock. Such material, although often of no immediate use, may be of great value to future workers in regard to such questions as relative fecundity, infant mortality, and sex prevalence in affected and unaffected stocks. The ages of father and mother at marriage and the intervals between (or ages of) the children are also very desirable. Further, the occurrence of other congenital diseases, deformities, or defects, either in the patient, or in his kinsfolk who may be free from the disease we are investigating, should always be sought for.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

A FURTHER NOTE ON ANTE-PARTUM OPHTHALMIA.

BY

ROSA FORD, M.B. (Lond.)

CLINICAL ASSISTANT TO THE ROYAL EYE HOSPITAL, SOUTHWARK, LONDON.

The following case of ophthalmia commencing in intra-uterine life may be added to those previously published (*THE OPHTHALMOSCOPE*, April, 1906, p. 210) by Mr. Sydney Stephenson and myself, and is of particular interest because it is clearly one of those cases in which infection must have taken place actually before the commencement of labour. The opportunities for accurate observation were also unusually good, the case having occurred in the York Road Maternity Hospital, under the care of Dr. Robert Boxall, to whose kindness I am indebted for the following notes.

Mrs. M.—was admitted to Hospital on April 21st, 1905, at 7 a.m., labour having commenced four hours before. The membranes were ruptured artificially at 10.30 a.m., and the child was born at 11.10 a.m., i.e., 40 minutes after rupture of the membranes, and 8 hours 10 minutes after commencement of labour. Twenty minutes later the house-physician saw the child, and noted acute inflammation of the conjunctiva of both eyes, which was very oedematous and spongy-looking; the upper eyelids were particularly swollen and projected to a great extent over the lower. There was a fair quantity of straw-coloured discharge. The placenta was born twenty minutes after the child, and the membranes were entire. No evidence of a two-fold rupture was found. No douche was given before labour. The child was full term, weighed 8 lbs. 3½ ozs., and had no inflammation other than in the eyes. Its position *in utero* was left occipito-posterior, rotating to left occipito-anterior. Labour natural. The mother had had two previous children, the former of which was born in the York Road Hospital, and had no ophthalmia. There was no history of vaginal discharge. The course of the ophthalmia was favourable; the discharge became thicker the next day; cure was complete in a fortnight.

Comments.—We have to account for two obvious facts, viz., (1) the occurrence of infection before labour commenced, it being certain that 8½ hours is an impossibly short time to allow of the incubation of the micro-organism, together with the production of so great a degree of inflammation; and (2) the early stage of

the inflammation. That is, we must try to discover why, since infection occurred before labour, it should yet have been so near labour, as that the inflammation at birth should be still in the first stage. In the absence of information we may suppose the gonococcus to have been the pathological agent, since this is the commonest organism found in the discharge in cases of ante-partum ophthalmia. Taking its usual incubation period of $2\frac{1}{2}$ to 3 days, which there is no good reason to suppose altered in these cases, and adding to this the 1 to 3 days required for the inflammation to reach its stage at birth, it will be seen that infection of the eyes, in all probability, occurred from $3\frac{1}{2}$ to 6 days before birth. There is no evidence of a recent infection of the mother's vagina. We are therefore led to believe that the microbe was lurking somewhere in the maternal tissues a considerable time before birth. The question, then, is, does any change occur in the genital organs during the last week of pregnancy, by means of which easier access to the ovum is gained by the micro-organism than at an earlier period.

To quote Galabin (*Manual of Midwifery*, 1904, p. 119). "It is now established that . . . spreading out (of the cervix uteri) . . . in the great majority of cases . . . does not take place until either a few days before active labour . . . or more frequently, until the commencement of definite labour pains. In very exceptional cases, however, generally those of primiparæ, the cervix may be expanded, so that the bag of membranes rests upon the external os, for some weeks before labour. Much more frequently, especially in multiparae, there is partial dilatation of the internal os in the last month or so of pregnancy, sufficient to let the finger pass through and feel the foetus presenting, but in these cases the cervix still remains a separate cavity, unoccupied by the bag of membranes." And again, p. 122, "The external os generally becomes . . . patulous . . . but this change is more marked in multiparae . . . In first pregnancies, the os is generally closed to the finger up to nearly the end of pregnancy. In multiparae the finger may generally be passed into the cervix in the later months, if not through the internal os."

Possibly, then, this spreading out of the cervix and patulousness of the external os towards the end of pregnancy may permit the secretion containing the gonococci to be washed against the ovum by the involuntary movements of the pelvic organs, so that it is no longer protected from infection. Both the internal and the external os expand more in multiparae than in primiparæ, and this may explain the much greater frequency of ante-partum ophthalmia in multiparae, while the exceptional occurrence of expansion of the cervix in primiparæ before labour may account for some of the cases in first children.

In the present case, it may be surmised that expansion of the cervix took place, as is common, a few days before labour, and that the micro-organism thus reached the unbroken membranes, and after passing through these, infected the eyes of the foetus.

THE COAGULABILITY OF THE BLOOD AND ITS RELATION TO INTRA-OCULAR HÆMORRHAGE.*

BY

P. H. ADAMS, B.A.OXON., F.R.C.S.

It is to Professor Sir A. E. Wright, of St. Mary's Hospital, London, that we owe practically all our knowledge of the coagulation time of the blood and its relation to various forms of hæmorrhage, and the tubes which I have used to measure the rate of coagulation are those described by Wright and Paramore in the *Lancet* of October 14th, 1905. Paton and Paramore (*Lancet*, October 28th, 1905) published an article on "Intra-Vitreous Hæmorrhage," recommending the use of citric acid in preference to calcium, as they found that the coagulation time was shorter than normal, instead of longer as had been supposed, and Professor Wright suggested that the hæmorrhage was due to thrombosis of a small vein. The case to be mentioned seems to confirm this supposition. The patient was a man of 26 years, who suddenly lost the sight of the right eye after an attack of typhoid fever in South Africa. When first seen by Mr. R. W. Doyne, his right vitreous was full of blood, whilst in his left a most peculiar condition of the veins was present, some of them being reduced to mere threads for a short distance and then broadening out again. On May 25th, he was put on citric acid, grs. xx, three times a day. His rate of coagulation was then 1 min. 45 secs. It has been taken every week since that time, and after the first week it has remained between 2 mins. and 2 mins. 45 secs. The veins of the left eye have recovered their normal calibre. He has had a few small peripheral retinal hæmorrhages, but his vision has remained 6/6 the whole time. Unfortunately, his right eye has not yet appreciably cleared up.

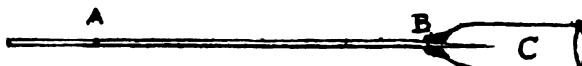
Another case, a woman aged 49 years, the sight of whose right eye has suddenly failed, about three months before coming under observation, was found to have the vision reduced to fingers moving at a few inches, and a condition suggesting venous thrombosis of the right eye, the left eye being perfectly normal. Her coagulation time was 1 min. 40 secs. On

*Communication based upon a demonstration given at the Oxford Ophthalmological Congress, July, 1906.

May 18th she was placed on citric acid, grs. xx, three times a day, and the dose slowly reduced to grs. v. t. d. s., by means of which her coagulation time has been kept between 2 mins. and 2 mins. 45 secs., and now her vision in the bad eye is 6/36.

I have used calcium in the form of the lactate, as recommended by Ross (*Lancet*, January, 1906), for a case of retinal haemorrhage in which the coagulation time was very low, but in spite of reducing the dose, have found difficulty in keeping the time short. Other drugs that may be used for the same purpose, as shown by Wright,* are calcium chloride, magnesium carbonate, or milk. Incidentally, I have had a case of urticaria under treatment, and it has to a very great extent cleared up upon, first, the administration of calcium lactate, and, latterly, of magnesium carbonate. I should also like to draw the attention of those who see such cases to the successful treatment of chilblains by calcium, as pointed out by Sir A. E. Wright, Ross, Stevens,† and others.

A description of the method of making the tubes and of the technique of measuring the blood coagulation may be of service to those unacquainted with Professor Wright's methods. The tubes, as shown in the diagram, are made from ordinary



glass tubing, cut into lengths of about five inches. The middle of the length is heated in a blowpipe or Bunsen flame and then drawn out to a fine capillary tube. Then 5 cubic mm. of mercury are run down the tube, until it occupies a length of 5 centimetres, this length is then marked on the tube with a glass pencil (A and B) and broken off with a length of tubing beyond each mark. Next draw out one end, preferably the thicker, a little beyond one of the marks, to a fine point, such that air can pass through, but not mercury. This is best done by drawing out the tube rapidly after heating in a small spirit flame or the "peep" flame of the Bunsen burner. Then put a collar of sealing wax round the tube just above the mark B, and drop it into C, fine end uppermost, when, by gently warming it, one can fix the mark B just at the neck of C, so as to be quite air-tight. The holder C is easily made from the end of the tube which was drawn out. A dummy rubber teat is now fitted tightly on C, and the tube is complete, except for making the part of the tube below A equal in contents to the part above B. This is done by sucking up mercury by means of the

**Lancet*, Oct. 14th, 1905.

†*British Medical Journal*, April 7th, 1906.

rubber teat up to the first mark A, then, taking it out and letting the mercury run to the top of the tube, noting about how far it extends below B. Then, by gradually breaking off the tube bit by bit one can soon get the part below A equal in contents to the part above B, and the tube is ready for use. To measure the rate of coagulation, you prick, usually, the thumb, to obtain a drop of blood; a glass needle, which can be easily made by drawing out some of the waste capillary tubing, is very convenient and painless for this purpose. Fill the tube with mercury to the first mark A, then put it in the drop of blood, and by gently letting the fingers separate, blood is drawn into the tube by the suction of the teat, till the upper limit of the mercury reaches the mark B, remove A from the drop of blood, and allow the mercury to run up to the end of the tube. The top of the tube is now filled with mercury, the length between the two marks with blood, and the part below the lower mark A with air. Take the time and put the tube as it is, point downwards, in a beaker of water at 37° C. After a minute, or minute and a half, take the tube out of the water, and squeezing the teat to drive out the blood, draw the tube along a piece of filter paper and examine this for traces of fibrin. If there are none, fill another tube in a similar manner, but leave it for 20 seconds longer; if, on the other hand, the blood was solid when first tried, a shorter period of time must be taken. In this way, with a little practice, one can determine the actual time at which coagulation starts, with an error of but a second or two.

TRANSLATION.

ON KERATITIS EX ACNE ROSACEA.*

BY
PROFESSOR OTTO SCHIRMER,
OF GREIFSWALD.

Under the above title Dr. E. Kuntz published last year from my *klinik* a dissertation, in which he described two cases of this rare disease. In order to rescue these from the oblivion of medical dissertations in general, I wish to abbreviate here the contents of that work and to add a third case, overlooked by the author, together with some remarks upon the whole subject.

The literature upon this disease is extraordinarily small.

*Translated from the *Zeitschrift für Augenheilkunde*, Juni, 1906.

Neither in our text-books, nor in the larger works upon the connection between eye diseases and general diseases (Knies, Schmidt-Rimpler, Grönouw in *Graefe-Saemisch*, 2nd edition), nor in special works upon skin diseases (A. Jarisch, *Die Hautkrankheiten*, Wien, 1900, p. 445, and Nothnagel's *Specielle Pathologie und Therapie*) could I find anything upon it; quite unsuccessful also was my search among other literature. Fuchs alone, in his *Lehrbuch* (10 Auflage, p. 115) mentions an acne rosacea conjunctivæ, first described by Arlt. He characterises it as a disease very similar to phlyctenulæ of the conjunctiva. "There appears in the limbus, with considerable appearances of inflammation, a little nodule. The efflorescence disappears after some days, and the little ulcer caused by it heals, leaving no visible scar." Vossius also (*Lehrbuch*, 3 Auflage, p. 301) registers this disease, and further mentions (p. 374) that in chronic skin diseases (psoriasis, ichthyosis, acne rosacea) there also appears a keratitis superficialis vasculosa, which much resembles pannus scrophulosus.

These notes have not become generally known, however, although the recognition of the etiological connection is of value therapeutically. An exact description does not exist in literature. It therefore appears to me practical—first to describe briefly the three cases, and, then, upon that basis, to sketch the characteristic points of keratitis ex acne rosacea.

Case 1.—A Swiss lady, F.R., 48 years, from Rügen, came into my clinic for the first time on Feb. 16th, 1900. She reported that her eyes had been healthy until the year 1899. In that year she had lost the sight of the left eye (apparently from a perforated corneal ulcer). In the spring of 1900 the right eye also went wrong and caused the patient much pain. Further, the left eye also again began to be inflamed.

For the rest she has always been healthy; she has two children living, both healthy; one child died four weeks after birth from a vesicular eruption. No abortion. Urine free from albumen and sugar. For several years—how long undecided—she has suffered from a frequently relapsing acne rosacea of the nose, cheeks, and forehead.

On the right eye, on the temporal edge of the cornea, is a long, extended flat ulcer, the surrounding region of which is to a large extent opaque and stippled. Marked conjunctival and pericorneal injection on the temporal half of the bulbus, in which $\frac{3}{4}$ cm. from the limbus is a spot about the size of a lentil, noticeable through especially severe injection, its slight prominence, and marked sensibility. Nasally, also, the conjunctiva is violently injected, and here upon the limbus is to be found a little grey-white prominence, which reminds one in appearance of a phlyctenule. On the left eye is a large adherent leucoma, with, however, no fresh appearances of inflammation.

Treatment consisted of iodide, atropine, and lukewarm boric applications, while Unna's Zinkschwefelsalbe was used for the acne rosacea. Already after three days the episcleritic nodule disappeared, the condition of irritation diminished, and the corneal opacity began to disappear. After fourteen days the patient was discharged cured, with yellow ointment for the eye and Zinkschwefelsalbe for the face.

With this treatment the eye remained free from inflammation for a year, but on the 10th of April, 1901, the patient re-appeared with the information that the right eye had been inflamed for a fortnight and had given much pain. Investigation shows that the acne is less pronounced than it was in the preceding year, but that it

is decidedly not cured. It has always varied very much in intensity. While the left eye is unchanged, there is to be found in the very markedly inflamed and injected right eye, outwards from the pupillary margin, a sub-epithelial, very extensive grey infiltration of the cornea of the size of 2-3 pinheads, to which several superficial vessels run from the margin.

Under treatment with atropine, sublimate ointment, and lukewarm boric applications, later also subconjunctival salt injections and puncture of the anterior chamber, the opacity gradually lessened, the condition of irritation diminished slowly, and the patient was again discharged as cured on the 9th of May.

She came back, however, on May 19th, because for two days a fresh inflammation of the right eye had come about with violent photophobia and pain, as well as reduction of the power of sight. At the same time the acne rosacea had become much more severe. In the violently inflamed eye is to be found an old paracentral infiltration lately more markedly reticulated, which is at the same time prominent with a considerably clouded surrounding area. The iris is somewhat hyperæmic, although there exists no true iritis. The little subepithelial infiltration is slit and scraped out with a sharp spoon. After-treatment with atropine, sublimate, and bandage. At the same time Lenigallolsalbe is given for the face acne. Hereupon cicatrification comes about in ten days, and the eye loses its redness.

On June 1st there appears on the nasal side down on the sclera, a small hard nodule over which the conjunctiva allows itself to be easily moved. Simultaneously there appears on the point of the curetted infiltration, lately subepithelial, a little spot of inflammation. The latter is touched with the thermocautery, the nodule extirpated, and a rabbit inoculated in the anterior chamber; no tuberculous iritis originates in the animal. Uninterrupted healing in the patient.

On June 14th the cicatrix of the curetted corneal infiltration again shows itself markedly infiltrated and prominent. It is again slit, scraped out, and cauterised. After this, complete healing comes about gradually; from various sides vessels extend to the infiltration, partly superficial, partly deeper lying, which participate in the healing process. The face acne is completely cured with Lenigallolsalbe, with the advice to rub in the ointment immediately should the face eruption again appear.

On August 31st, 1905, she replies on enquiry that her eye in the interval has not become inflamed. The face eruption has shown itself now and again, but has never been considerable.

Case 2.—A woman, 42 years old, from Belgrade came into the clinic for the first time on June 20th, 1905. She had never been seriously ill; no sign of syphilis or tuberculosis; urine free from albumen and sugar. The present disease of the face began about eleven years ago. First, there appeared little nodules near the chin, which finally mingled with one another. The eruption itched sometimes, but never very severely. Gradually the skin trouble extended, little red flecks came upon the point of the nose and the ala nasi; finally, also the skin upon the cheeks and forehead became affected. The patient was treated for the trouble from the first. Only transitory, inconsiderable improvement came about, however.

Seven years ago the right eye became affected for the first time with marked reddening, lacrymation, and photophobia, as well as considerable reduction in the power of sight. It was treated with atropine and warm moist applications, and within four weeks all symptoms disappeared, and the sight again became good. Since this time the right eye frequently became affected in the way described above, especially in summer. Under atropine, improvement always came about for a longer or shorter time. Sometimes the left eye became diseased, but always in a less degree than the right. Treatment in a Berlin eye clinic, about six years before, gave rise to a transitory improvement only. For three years the power of sight of the right eye had become much worse. Since January, 1905, the left eye also has become weaker. On account of the alleged scrofulous eye inflammation, the patient once visited Kolberg for sea-bathing for some time, but without result.

Investigation shows in the otherwise healthy woman an extended acne rosacea of the nose, chin, cheeks, and forehead. On the right eye is a slight pericorneal and conjunctival injection, some photophobia and lacrymation. The whole lower nasal quadrant of the cornea is included in a white-grey opacity, which, towards the temporal and upper side, so far oversteps the boundary of this quadrant that it completely covers the normally wide pupil. The intensity of this opacity varies somewhat in the different spots.

Directly in the centre is a small triangular spot of intense white colour, which is presumably to be traced to a degeneration. Although the surface is very uneven, in no spot is the epithelium lacking. The surface layer of the whole territory of the opacity is traversed by relatively few vessels. The adjoining lower temporal quadrant is occupied by similar but much less intense opacities. The upper corneal region alone is absolutely clear.

Upon the left eye, likewise, is slight pericorneal infection, and a rather slighter condition of irritation. Here, also, is found a similar vascularised opacity, with a broad base fixed upon the whole edge of the outer-lower quadrant. From here it extends in a prominent form into the pupillary region. Although everywhere covered with epithelium, yet there are various spots which are somewhat depressed and give the impression that they have been caused by ulcers. To this also corresponds the fact that the central margin of this part still shows distinct grey infiltration, as when a slow progressive subepithelial degeneration is concerned. The surface vessels extend to this edge. The power of sight is R. = $\frac{1}{2}$ L. = fingers at 3 metres.

The treatment consists of atropine and sublimate ointment, alternating with yellow ointment. The skin eruption is rubbed in the morning with Kephalol, at night with Unna's Zinkschwefelpaste. With this the symptoms of irritation of the eye showed a considerable diminution, likewise the corneal opacity decidedly cleared up somewhat, especially in its marginal part. The acne rosacea is scarcely improved. On the 31st May, at the patient's desire, she was discharged, with the advice to continue the treatment carefully at home. Six weeks later she wrote, saying that no new inflammation of the eyes had come about, and that the power of sight had been well maintained.

Case 3.—The master-carpenter G., aged 52 years, from Pollnow, came into the clinic for the first time on 6th November, 1902. The man, quite healthy in other respects, says that since his twenty-fifth year he has suffered from an eruption on the forehead, cheeks, and nose, which exists in constantly decreasing intensity, but extends in area from time to time, completely disappearing only during the four years which he spent in America (thirty-second to thirty-sixth year). He sought the clinic on account of violent pain which existed in the left eye, blinded through a wound. The right eye also has just recently become slightly reddened and painful.

There exists a typical acne rosacea of the face. The left eye suffers from secondary glaucoma. On the right there exists in the lower temporal quadrant an extensive subepithelial opacity, traversed by a few vessels; opposite the pupillary margin is a small gray-coated ulcer. V. = 1.

The left eye is resected; the right treated with yellow ointment. After ten days the patient is discharged cured.

For three years he remains well, and first comes again on the 11th February, 1902, with a severe relapse of the inflammation upon the right eye, which has existed for some weeks, and has reduced the power of sight to counting fingers at $\frac{1}{2}$ m. The left eye is pale, with no irritation. Pericorneally, the right eye is considerably injected. There exists an extended subepithelial opacity of the whole lower half of the cornea, which is traversed by a few vessels. Directly in the centre is a small infiltration. The iris is discoloured and hyperemic. The treatment consists in iodide internally, eumydrin ointment—since atropine cannot be tolerated—and applications of aluminium acetate. For the acne 5% resorcin ointment. With this the appearances of irritation were quickly reduced, so that yellow ointment and potassium iodide ointment could soon be used, and the cornea constantly became clearer. After four weeks the patient was fit for discharge, with V. = $\frac{1}{2}$, and he took the ointment for use at home.

He remained free from relapse during a year. At the beginning of April, 1906, however, he again came to the clinic, because the eye had been inflamed for two weeks, while the acne had again appeared more markedly. In the lower half of the right cornea was a little grey ulcer of the size of a pin's head, with slight opacity and vascularisation of the surrounding marginal parts of the cornea, at the same time the eye was exceedingly inflamed and pericorneally injected. Under the influence of treatment similar to that of the preceding year, complete cure was obtained this time also in fourteen days.

Remarks.—In all three cases we find in elderly persons

a superficial and relapsing keratitis, which shows an undoubted similarity to scrofulous corneal inflammation. Yet this ætiology appears to be excluded by the age of the patients—42-52 years—and by the absence of scrofulous antecedents, and we can, in the absence of any other kind of bodily disease, point to acne rosacea as the cause. In favour of this diagnosis speak also the several attacks of inflammation of the eye coinciding with the attacks of acne; the favourable influence of the treatment of the cutaneous eruption upon the corneal inflammation; and, lastly, the existence in Case 1 of the peculiar conjunctival efflorescence, first described by Arlt.

The disease itself appears principally as a subepithelial keratitis, which sets in with it may be violent or it may be slight appearances of inflammation, and is distinguished by its great inclination to relapse. The small number of vessels in the latter, as compared with scrofulous pannus, is striking, also the coarse irregularities of the surface, which, regarding the levelling tendency of the epithelium, can with difficulty be regarded as irregular epithelial thickening, but much more probably indicates subepithelial hyperplasia. Still more characteristic to me seems the exact stripe of infiltration, as it appeared in Cases 1 and 2 on the margin of such opaque surfaces, and progressed slowly and centrally, always subepithelially with inflammatory symptoms. One cannot speak here of a so-called progression wall, because a prominence is scarcely present. On the contrary, I several times found behind this infiltrated edge a slight depression of the surface, which pointed to epithelial destruction of tissue and cicatricial shrinking.

I consider it probable that the disease may be regarded as acne rosacea. The formation of vessels, and the doubtful hyperplasia of the subepithelial tissue tell in favour of that diagnosis. But we can only be sure, when the causes of acne rosacea itself are known.

The treatment is similar to that of scrofulous corneal inflammations. Whether the internal use of iodide hastens the course of the disease I cannot say with certainty. It is, however, certain that treatment of the acne of the face is absolutely necessary, and that its removal alone furnishes a protection against relapses of the ocular inflammation.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—PATHOLOGY.

- '1, Lotin.—A case of primary melano-sarcoma of the eyelid. (*Ein Fall von primaeren Melanosarkom des Augenlides.*) *Klin. Monatsbl. f. Augenheilk.*, 1904, p. 253.
- '2, Hotta.—The pathological alterations of eyes with high myopia through glaucoma. (*Ueber die pathologisch-anatomischen Veraenderungen hochgradig myopischer Augen durch Glaucom.*) *Klin. Monatsbl. f. Augenheilkunde*, 1904, Bd. II, p. 84.
- '3, Besch.—On primary sarcoma of the orbit, especially cystosarcomata. (*Ein Beitrag zur Lehre der primären Orbitalsarkome besonders der Sarkome mit Höhlenbildung.*) *Klin. Monatsbl. f. Augenheilkunde*, 1904, Bd. II, p. 94.
- '4, Rumschewitsch.—The pathological anatomy of the so-called "druses" of the lamina elastica choriodæ. (*Zur pathologischen Anatomie der sogenannten Drusen der Glaslamelle der Aderhaut.*) *Klin. Monatsbl. f. Augenheilk.*, 1904, Bd. II.
- (5) Stanculéano.—Unusual condition of the posterior surface of the cornea in a case of keratitis parenchymatosa. (*Seltener Befund an der Hinterfläche der Kornea bei einer klinisch diagnostizierten Keratitis parenchymatosa.*) *Klin. Monatsbl. f. Augenheilk.*, 1904, Bd. II, p. 456.
- (6) Kampherstein.—A contribution to the pathology and pathogenesis of congested papilla. (*Beitrag zur Pathologie und Pathogenese der Stauungspapille.*) *Klin. Monatsbl. f. Augenh.*, 1904, p. 501.
- (7) Foster.—On infiltration-oedema (gelatinous pannus degeneration) under Bowman's membrane. (*Ueber Infiltrationsoedem (gallertigen Pannus degenerations unter der Bowmanschen Membran.)*) *Klin. Mon. f. Aug.*, 1904.
- (8) Beduarski.—On the pathological changes in the zonule of Zinn. (*Ueber die pathologisch-anatomischen Veränderungen der Zonula Zinnii.*) *Archiv f. Augenheilkunde*, Bd. LI., p. 227, 1905.

- (9) Bennett, H. Percy.—Case of primary intradural tumour of the optic nerve. *British Medical Journal*, May 13th, 1905.
- (10) Schnabel.—The development of glaucomatous excavations. (*Die Entwicklungsgeschichte der glaukomatösen Exkavation.*) *Zeitschrift f. Augenheilkunde*, Juli, 1905.
- (11) Schridde, H.—Histological investigation of the gonorrhœal ophthalmia of infants. (*Histologische Untersuchungen der Conjunctivitis Gonorrhœa neonatorum.*) *Zeitschr. f. Augenh.*, Dezember, 1905.
- (12) Meller, S.—Lymphomatous tumours in the orbit and eye. (*Die lymphomatösen Geschwulstbildungen in der Orbita und im Auge.*) von Graefe's *Archiv f. Ophthalmologie*, Bd. 62, i., 14 Dezember, 1905.

(1) Lotin's patient was a man of 26 years with a tumour of the right lower lid, the size of an apple. The tumour was extirpated, and found to consist of spindle-shaped cells with intra-and inter-cellular pigment, inflammatory foci, necrotic appearances, and haemorrhages. The number of recorded cases of primary sarcoma of the lids now extends to sixty. A. BIRCH-HIRSCHFELD.

(2) The principal effect of glaucomatous increase of pressure is the excavation of the optic nerve. The conus myopicus is usually excavated by the pressure at a later stage of the disease.

A. BIRCH-HIRSCHFELD.

(3) Besch describes a case of retrobulbar sarcoma consisting of pigment-cells, round-cells, and spindle-cells, which was extirpated by Kroenlein's method with good results. A large cyst formed the centre of the tumour, which the author believes to have arisen from a haemorrhage into the tissue of the tumour.

A. BIRCH-HIRSCHFELD.

(4) Rumschewitsch, like Schieck, found that the "druses" originate from the pigment-cells of the retina. The details of the paper are unsuited to a short abstract.

A. BIRCH-HIRSCHFELD.

(5) The patient was a girl of 17 years, suffering from lues hereditaria with keratitis parenchymatosa. The pathological examination showed on both corneæ an ulceration of the deeper layers of the cornea with proliferation of endothelial cells and synechia anterior. In the ulcerated part Descemet's membrane was ruptured and folded.

A. BIRCH-HIRSCHFELD.

(6) This interesting paper gives the results of investigation of 55 cases. Kampherstein discusses the various theories, and comes to the conclusion that the Schmidt-Manz theory has

little to be said for it, nor is Leber's theory always satisfactory. In 27 cases he found inflammatory appearances in the papilla. His explanation of the condition is an oedema proceeding from the brain. He was able in 60% of his cases to establish this anatomically.

A. BIRCH-HIRSCHFELD.

(7) In examining an eye enucleated for severe iridochoroiditis **Foster** found the following alterations of the cornea.—The epithelium and Bowman's membrane were only slightly changed, but below the membrane was a light-coloured layer of gelatinous infiltration. This layer extended over the whole cornea and was thickest in the centre, and numerous round polynuclear and spindle-shaped cells were embedded in it. The anterior corneal lamellæ were less easily colourable, but otherwise normal. Descemet's membrane was normal, but deprived of its endothelium. The question as to whether the anatomical condition was caused by entrance of plasma from the marginal vessels of the cornea or by imbibition of aqueous humour into the cornea, is left open.

A. BIRCH-HIRSCHFELD.

(8) **Beduarski** investigated the condition of the fibres of the zonule of Zinn in four eyes enucleated after serious injury followed by inflammation and consecutive glaucoma, and in two cases of dislocated lens in high myopia. The conclusions he comes to are that in certain pathological conditions the fibres become thicker, stain less readily, diminish in refractibility, and tend to undergo hyaline degeneration. Their contour becomes irregular, and, finally, they lose their identity, dissolving into a formless mass. Occasionally, they become surrounded with a mass of serous exudate. The seeming thickening of the fibres in some cases is also due to the fusion of several fibres. Exceptionally only is this fusion brought about by cellular elements. There is no true hypertrophy of fibres. In cases of staphyloma the atrophy of the zonule fibres advances *pari passu* with the atrophy of the ciliary body, being greatest in the region where the latter is most degenerate.

LESLIE PATON.

(9) A lad, eleven years of age, presented forward proptosis and blindness of one eye, the movements of which were in no way impaired. The condition had existed for four months. The eye was removed, together with 1.3cm. of apparently normal nerve. On inserting a finger into the orbit, however, a tumour could be felt extending into the optic foramen. In order to remove the whole of this mass, **Bennett** used a small scoop, and by that means brought away the tumour, along with 1cm. of healthy-looking optic nerve behind the growth. The patient made a good recovery. The growth was smooth and spindle-shaped, measuring 3.5cm. long, 1.9cm. in diameter at its widest part, and having a maximum circumference of 6.2cm. Histolo-

gically, the growth was found to consist of an overgrowth of the connective tissue of the framework of the nerve.

(10) **Schnabel**, in this most interesting paper, describes a series of microphotographs of glaucomatous nerve-heads derived from his clinic, and here reproduced. It is therefore impossible in an abstract to do justice to this important communication. Schnabel contends that the glaucomatous excavation is due to the atrophy of the optic nerve, and not to an alteration in position of the lamina cribrosa. He describes in early cases of glaucoma the formation in the nerve-head of spaces occupying the position of nerve bundles, but from which the nerves have disappeared. The fibrous tissue remaining commences to contract and takes up very much less room than in the full nerve, and then the glaucomatous excavation appears. Atrophy of the nerve fibres must precede it, and the lamina cribrosa is not altered in position. Only late, when the fibrous tissue has contracted, this contraction may also involve the lamina, but this is not an essential part of the process.

A. LEVY.

(11) In view of the few histological examinations of gonorrhœal ophthalmia which have been made, **Schriddé** has taken advantage of an opportunity, which the death of an affected child offered, to examine in detail the changes present. The first change is a swelling of the connective tissue, the interstices being filled with masses of gonococci, and also with great numbers of leucocytes. It is only in the most superficial layers that the cocci are seen to be within the leucocytes; for the most part they are free. In the surrounding unaffected epithelium great numbers of karyokinetic figures are seen. The sub-epithelial tissues show no particular changes. In more advanced places there is a total destruction of epithelium, forming very small ulcers with clean-cut edges, in some of which new granulation tissue can be seen.

A. LEVY.

(12) The old distinction between localised tumours of lymphatic origin, known as lymphoma and lymphadenoma, without participation of the general glandular system, and those which were considered to constitute but a symptom of the general complex of leukæmia and pseudo-leukæmia, has not survived modern developments in our technical knowledge as applied to the close study of the elements of the blood. The mere statement of the proportion of red and white corpuscles is insufficient if a thorough sifting and counting of the various forms of white corpuscles is omitted, which may alone reveal serious impairment of the blood-producing apparatus. **Meller** applies the name "Lymphomatosis" (first introduced by **Türk**) to all hyperplastic changes of the lymphatic apparatus. The tumour generally known as chloroma constitutes a special

form, as the green tint, which is generally considered characteristic, is not always present, and of little importance. Its interest for us lies merely in the fact that exophthalmos is usually its first visible symptom. Chloroma is therefore generally first seen by the ophthalmic surgeon. Analysis of the blood usually reveals the condition of lymphatic leukaemia (Erlich). This condition is characterised, not by any marked increase of the number of white corpuscles, but by the preponderance of the uninuclear medium-sized cells with scanty basophile protoplasm which indeed sometimes constitute practically the whole of the lymphocytes, while the polynuclear neutrophile leucocytes, which normally form the bulk of the white corpuscles, are greatly reduced in number. The origin of the orbital tumour has always puzzled pathologists, as there are no lymphatic glands in the normal orbit. Meller argues with regard to his anatomical researches, that the lymphatic tissue originates here, partly from the conjunctiva and partly from the lacrymal gland. If the lymphatic products, the formation of which is largely increased, cannot well flow off, they accumulate, and form a tumour, which assumes an aggressive character, penetrating and substituting the adjoining tissues. The lymphatic infiltration occurs, not only in the orbit, but also within the eye, where it leads to the formation of genuine tumours, especially in the choroid, where the posterior portion is more generally affected, in the retina, and even within the cornea. It remains doubtful whether myeloid leukaemia can produce similar tumours.

R. GRUBER.

II.—OPERATIONS UPON THE EYELIDS.

- (1) Hale.—A new treatment of blepharorhaphia. (*Ein neues Verfahren der Blepharorhaphie.*) *Klin. Monatsbl. f. Augenh.*, 1904. I, p. 577.
- (2) McMillan, Lewis.—An operation for the relief of senile entropion. *Ophthalmic Review*, March, 1905.
- (3) Capdevilla.—A contribution to the study of blepharoplasty. (*Contribucion al estudio de la blefaroplastia.*) *Archivos de Oftalmologia Hispano-Americanos*, Mayo, 1905.
- (4) Briganti, P.—The transplantation method for the treatment of trichiasis, and new instruments for the operation. *Archives of Ophthalmology*, May, 1905.
- (5) Calderaro.—The best methods of blepharoplasty. (*Sui migliori processi di blefaroplastica.*) *La Clinica Oculistica*, April-July, 1905.

- (6) Benson, A. H.—**Evolution in blepharoplasty.** *British Medical Journal*, August 26th, 1905.
- (7) Blanco.—**A new operation for the relief of atonic senile ectropion.** (*Indicaciones que hay que llenar y nuevo procedimiento operatorio para la corrección del ectropion atónico senil.*) *Archivos de Oftalmología Hispano-Americanos*, September, 1905.
- (8) Monthus, A.—**On the happy effect of tarsorrhaphy in certain injuries of the eyeball.** (*De l'heureux effet de la tarsorrhaphie dans certains traumatismes du globe.*) *Archives d'ophtalmologie*, janvier, 1906.

(1) Hale's method consists in first extirpating in the outer part of the lid the conjunctiva of upper lid and the skin of the lower lid and then sewing together the skin of the upper lid and the conjunctiva of the lower lid. A. BIRCH-HIRSCHFELD.

(2) McMillan's operation consists of making an incision outwards from the external canthus and removing a triangular-shaped piece of skin with the apex downwards, the base of which is formed by the first incision. When this is closed with sutures, the lower lid is stretched and the lashes become everted. C. D. M.

(3) After a short *résumé* of the literature of the subject Capdevilla describes a new operation for the restoration of the skin of the upper lid, by means of a flap taken from above the opposite eyebrow. By including in this flap the upper half of the eyebrow, the surgeon can make a new eyebrow on the affected side, if required. HAROLD GRIMSDALE.

(4) Briganti properly informs us that among the different methods for the surgical treatment of trichiasis, the foremost place should be given to the one which, while not deforming the lid or sacrificing any of its tissue, brings the lashes into a position which is the nearest possible to the normal. This he has endeavoured to obtain by modifying the so-called Italian method, or Scimemi's margino-plastica, and by employing new instruments during the procedure. One of the devices is known as the "marginal forceps"; these are made both right and left. The other is styled the "flap forceps." The reports of all of his cases are gratifying. The presence of overgrown hairs has occurred but once in the many cases upon which he has operated. C. A. O.

(5) *La Clinica Oculistica* for April-July contains a long and interesting article by Calderaro on operations for the relief of ectropion and the formation of new eyelids. After a short historical sketch, in which he shows the recent date of the idea of operating in such deformities, he proceeds to the main

subject. There are four chief forms of operation : 1. The method by turning of a flap ; 2. The method of lateral displacement of a flap ; 3. The method which employs flaps or grafts entirely separated from their origin ; and 4. The palpebro-palpebral methods.

The type of the first group may be taken to be that of Fricke. In this group the eyelid is freed from its adhesions by dissection, and the space thus made filled by a flap taken from the forehead or cheek. The second wound is closed by lateral displacement of parts. Varieties of this method are plentiful, and among them may be considered the Tagliacotian method.

In using any of these plans, it is necessary to ensure that the flap has a free vascular supply. The base, therefore, must be situated in a part well supplied with blood-vessels. In dissecting the flap the edge of the knife must be kept against the bed from which the flap is taken, so that no important vessel may be cut in the flap itself. Lastly, the dissection of the flap must be always carried so far that the turning of the flap does not press unduly on the nutrient vessels.

In the body of the flap the surgeon should find cutis only; in the peduncle he should include the deeper subcutaneous tissues. The nutrition of the flap during the first 24 or 36 hours depends largely on the vessels of the peduncle. It is therefore necessary that the flap, as a whole, should consist of normal skin, and not be made up of scar tissue, in which the vessels are few and atrophic. Since the flap will undergo shrinking after the operation is completed, it is important to place the base in such a position that the contraction will rather tend to prevent a recurrence of the deformity for which the operation was undertaken : if the upper lid has been the seat of operation, the base of the flap will be put below the canthus ; if the lower, the base of the flap will be put above ; in each case the pull will tend against the reappearance of the deformity.

After a time the transplanted skin changes its nature, becomes more soft and supple, and, after some years, cannot be distinguished from the skin of the normal lid.

In the second group of operations, the lost tissue is replaced by a sliding of the surrounding skin. The type of this division is the method of Dieffenbach. It has been modified by many surgeons, and that bearing the name of de Vincentiis is of importance. In this operation the whole lid is bodily shifted to fill up the gap left after removal of the diseased part, and the tendency to secondary eversion is not excessive. Calderaro does not recommend any of this group with this one exception, which, further, is only applicable to comparatively small defects.

In dealing with the third group, Calderaro points out that

there are two sub-groups of operations: those which use the whole thickness of the skin and those in which the epithelium only is taken. Whereas the former is often of great value, the latter method, in Calderaro's opinion, is most unsatisfactory, and should be universally discarded in favour of some other.

The operations of the fourth group are rarely of use; with the exception of that of Cirincione, who stretches the conjunctiva which is left and applies to it a flap of skin, so as to make a complete lid.*

HAROLD GRIMSDALE.

(6) After tracing in an interesting way the evolution of the surgical treatment of trichiasis and entropion, **Benson** describes the operation which has been practised for the last 21 years at St. Mark's Hospital, Dublin, with results that leave little to be desired. The operation is equally suitable for the upper and the lower lid, and to all varieties of trichiasis, with or without entropion. Briefly, under general anaesthesia, the affected eyelid is clamped, and a deep (at least $\frac{1}{4}$ inch) intermarginal incision is made with a Graefe knife along its entire length. The patient's lip is next clamped, and a pointed flap, slightly *smaller* than the wound it is intended to fill, is dissected out with knife, scissors, and forceps. The strip of buccal mucous membrane is carefully sutured into the gaping wound in the free edge of the eyelid. At this stage the lid clamp is removed, but, as Benson is careful to point out, the bleeding does not interfere with the vitality of the flap, provided the latter has been properly sutured into its new position. It is not necessary to bandage both eyes. A dressing of boric ointment is simply applied to the parts that have been operated on, and a bandage applied. The result of the operation is permanent, since the mucous flap does not shrink, as transplanted skin is apt to do.

S. S.

(7) After a short discussion of the methods by which senile can be diagnosed from other forms of ectropion, **Blanco** proceeds to point out the evils which follow if the deformity remains uncorrected. He then describes his operation, which is a variant to de Wecker's method of sutures. Each end of a suture is armed with a needle, and these are passed in succession, in the following manner: the point is made to perforate the conjunctiva about 1 mm. from the lid margin, and the needle is driven on thence in the submucous tissue to the lowest part of the tarsus; here it is brought out through the conjunctiva. It is again introduced through the point of exit and carried down subcutaneously to the junction of the lid and cheek; here it is

*Calderaro's paper is interesting, because his results are very different from those which other surgeons have obtained. Comparatively recently Adjemion and Hotz have separately sung the praises of the Thiersch graft as applicable to all cases of ectropion. It is difficult to reconcile the results. -H. G.

brought out on the surface. The ends are tied over a piece of drainage tube ; two such sutures are usually required.

HAROLD GRIMSDALE.

(8) **Monthus** reports briefly seven cases in which the lids were stitched together in penetrating wounds of the sclero-corneal margin, the results being excellent in all save three. Five of the patients were children. The operation should be undertaken as soon as possible after the injury, the central portion only of the lids should be united, and the occlusion should be kept up for a fortnight at the least. Contra-indications are—a foreign body in the eyeball, wounds of the lens in the adult, and, finally, infective keratitis of rapid evolution. S. S.

III.—A NEW OPERATION FOR GLAUCOMA.

Lagrange, Félix.—Combined iridectomy and sclerectomy in the treatment of chronic glaucoma. (*Iridectomie et sclérectomie combinées dans le traitement du glaucomé chronique : procédé nouveau pour l'établissement de la cicatrice filtrante.*) *Archives d'ophthalmologie*, août, 1906.

Lagrange, of Bordeaux, read an important paper describing a new operation for chronic glaucoma at the meeting of the French Ophthalmological Society in May last. It is now published (with coloured illustrations) in the August number of the *Archives*.

de Wecker defined glaucoma as essentially consisting in a dislocation of the equilibrium that should exist between the secretion and the excretion of the intra-ocular fluid. Every surgical intervention designed for the relief of glaucoma must necessarily act either by diminishing secretion or by facilitating excretion. Sympathectomy was utilised for the former purpose, but experience has shown that its results are not permanent. Most of the operations practised for the relief of glaucoma, as iridectomy and sclerotony, go upon the principle of hastening excretion. It has been widely recognised that the best results are to be obtained by the production of a pervious cicatrix, but up to the present (despite the efforts of Bader, Walker, and Herbert) we possess no simple, certain, and convenient way of obtaining this result. The cystoid cicatrix liable to follow iridectomy implies a prolapse of the iris, a thing very generally regarded as undesirable. Lagrange, however, believes that in the operation he has devised we possess the means of making safely a pervious cicatrix (*cicatrice filtrante*) in the region of the canal of Schlemm, without the least prolapse of the iris.

The steps of Lagrange's operation are as follows :—

Physostigmine having been applied to the eye, an incision is made by means of a narrow blade in the sclera parallel to the upper edge of the cornea at some little distance from the latter, freeing the filtration angle as exactly as possible. In making the section, the blade is rotated, so as to turn the cutting edge of the instrument a little back. In the result, therefore, the sclera is bevelled. When the section has reached the conjunctiva, the blade is turned definitely backwards, for the purpose of cutting a large conjunctival flap. The flap of mucous membrane being turned forward over the cornea, the next step is to resect by the aid of small toothed forceps and well sharpened and strongly curved scissors (made by Lüer, of Paris), a small piece of the sclera left attached to the cornea. Lastly, an iridectomy is made, as usual a large piece of iris being removed in two stages up to the angle of the chamber. Briefly, then, Lagrange's operation may be described as a sclerotomv and a sclerectomy combined with an iridectomy.

Cicatrisation follows its normal course, except that there is perhaps a delay of several days in the formation of the anterior chamber. When the parts are healed, one sees beneath the transparent conjunctiva a narrow line representing the weakened portion of the sclera.

Lagrange has operated on twenty patients without having met with difficulty or accident, either immediate or remote. One patient was operated on three years ago, two eighteen months ago, and the remainder more recently. He publishes *in extenso* details of fifteen cases in which upwards of six months have elapsed since operation, and he claims that in every instance the procedure outlined above has produced a cicatrix which allows of ready escape of the intra-ocular fluids.

S. S.

IV.—THE SURGICAL TREATMENT OF TRACHOMA.

Brawley, Frank E.—Trachoma as treated by Dr. Herman Kuhnt, of Koenigsberg. *Ophthalmic Record*, October, 1905.

Brawley spent some time in the centre of the trachoma district of East Prussia, Koenigsberg, and was fortunate enough to be able to study Kuhnt's methods of treatment at first hand. The treatment of trachoma in East Prussia, where the disease is very prevalent, the author says, has for the past four or five years been under Government supervision.

"Physicians from all parts of the district are given special

instruction in the diagnosis and treatment of this terrible disease in a series of special courses by Professor Kuhnt in his hospital at Koenigsberg. These physicians make systematic examination of school children, factory employés, &c., and those found to be suffering from trachoma are obliged by law to receive treatment, and if necessary to go into the hospital at Koenigsberg.

"The entire expense of treatment, living expenses, and railway fare to and from the hospital is borne by the Government. The hospital is not a large one, and contains only about twenty-five beds, as the clinic is almost entirely an ambulatory one. Only the severe cases with corneal involvement and freshly-operated cases are cared for in the hospital. The whole neighbourhood about the hospital is devoted to boarding houses, where the patients reside during the treatment, reporting as often as necessary.

"The clinic averages twenty-five new patients, and in all about two hundred are treated daily. The treatment is the climax of Dr. Kuhnt's extended researches, and he is confident that he has, as he expresses it, 'spoken the last word upon the subject of trachoma treatment.' This may be classed as medicinal, mechanical, and operative. The first method is used chiefly for acute cases, after-treatment, and in recurrent infections. These cases are treated in the usual way with silver nitrate two per cent., copper or alum stick, and, in short, much as trachoma is treated in this country. Individual sterile glass applicators and camel-hair brushes are used in treating each case. A glass irrigator, or undine, with physiologic salt solution is used to remove the excess of medicament from the sac. Protargol is used in ten per cent. solution in glycerin, especially in freshly-operated cases, and after the expression treatment.

"The more severe or chronic cases, which do not yield to the medicinal method, are prepared for operation. In cases with succulent granules, these are expressed with the instrument designed by Kuhnt. This consists of a solid plate opposed to a perforated plate of equal size, and both fitted to the arms of a pair of strong tissue forceps. The expressors are three in number, two sizes with rectangular plates, and one oval in form and somewhat pointed for convenience in reaching granules in the plica semi-lunaris." The forceps* devised by Stevenson, of Akron, Ohio, the author says, "are, however, more practical than those just described, as the edges of the perforations are sharper and the size convenient for all purposes.

"Local anaesthesia is employed. Cocaine in ten per cent. solution is instilled in the conjunctival sac and injected beneath

*For an illustration of Stevenson's forceps, see *The Ophthalmoscope*, 1905, p. 93.—EDITORS.

the conjunctiva and the skin of the lid. The perforated plate is introduced as far as possible into the cul-de-sac, and, with the solid plate resting on the outer skin surface, the lid is forcibly compressed between them, thus rupturing the granules and squeezing out their contents. The whole lid is treated until all granules have been expressed. Powdered airol is dusted into the sac after irrigating with bichloride solution (1-5,000), or ten per cent. protargol is instilled. The eye is then bandaged for protection and the bandages changed daily. Usually, considerable reaction follows, and this is controlled with iced applications. The patient, however, has a 'black eye' for some time afterward. As soon as the eye becomes quiet, usually in three or four days, the medicinal treatment is resumed. If the case is still resistant the removal of the tarsus is considered. The treatment has by this time usually brought about a limitation of the disease to the tarsus and that portion of the retro-tarsal folds immediately adjacent, and this whole surface must be sacrificed.

"Kuhnt employs three operative methods. The first is the simple excision of the diseased portion of the retro-tarsal folds, an operation he adopts where there is no great involvement of the tarsus. In the lower cul-de-sac the simple excision is the only possible operation, owing to the small tarsus, and here he often removes a small strip from the convex border of the cartilage, together with the diseased folds of conjunctiva.

"Where the tarsus is extensively involved and the other methods have failed, the so-called combined excision is used. Kuhnt removes in this operation the diseased retro-tarsal folds, together with all of the tarsus except a narrow strip left at the lid margin to retain the lid in its proper form. The *technic* of the operation is as follows: the lid is turned and the convex border of the tarsus is fixed with two pairs of rat-toothed forceps having a sliding lock mechanism. The lid is now turned again upon itself, exposing the retro-tarsal folds, and the forceps are turned over to an assistant to hold. The first incision, through the conjunctiva, parallel to the convex tarsal border, includes the diseased portion of the folds. Here it is necessary to avoid Müller's muscle, which is bluish in colour, and may be seen shining through the thin layers of over-lying connective tissue after cutting through the conjunctiva. At this juncture three stitches are put into the extreme edge of the remaining conjunctival folds and the folds carefully dissected up with the blunt-pointed scissors as far as the reflection upon the eyeball, traction being made upon the stitches to facilitate the dissection. (Waxed, black, braided silk, No. 2 sutures have been found preferable for this purpose by Casey Wood, because of the minimum friction while passing

through the tissues, absence of kinking and of mechanical irritation from the knots and the ease with which they may be seen and removed.) The lid is now released from the two forceps and grasped at the centre of its margin by a forceps having bent tips made to avoid the injury to the broad cartilaginous lid margin by curving over it to fasten in the tarsal plate behind.

"A bone spatula is now placed under the turned lid and next the skin surface in order to afford a firm support for the next incision. This incision begins at the inner and extends to the outer canthus, uniting the extremities of the first incision but including both the conjunctiva and the tarsus. This incision curves opposite the middle third of the lid so as to leave a broader band of cartilage for support, curving towards the lid margin as it approaches the outer canthus. Here again the bluish muscle of Müller must be carefully avoided. The tarsus, with its attached conjunctiva, is now grasped at the inner canthus with toothed forceps and carefully dissected away from the loose underlying connective tissue with blunt-pointed scissors, cutting as close as possible to the tarsus and using blunt dissection where possible. All forceps are now removed and the lid allowed to close. The three sutures first inserted are now drawn to lie in lines perpendicular to their points of insertion. Where these sutures cross it the lid margin is grasped by toothed forceps and each suture is passed through the tarsus exactly at the point marked, thus giving accurate approximation of the wound edges.

"One knot is now tied loosely and the patient is allowed to recover, in the case of a general anaesthetic, sufficiently to open and close the lids. If the suture is tied too tightly the lid will now be seen to pucker and should be loosened until the movement is normal. If necessary the lids may be turned and the retro-tarsal folds dissected still further to allow them to cover completely the space of the sacrificed tissue, and so prevent the puckering and interference with the normal lid movements. For ease in removal, Kuhnt now leaves about an inch of the suture ends. (Here it may be said that it would be well to avoid direct contact of the sutures with the cornea by placing one suture opposite each corneal margin, leaving out the central suture and using four instead of three sutures.) The after-treatment consists in gentle irrigation with a warm boric-acid solution and the application of sterile vaselin, with which, if necessary, atropin may be combined.

"The possibility of corneal complications is very slight, still one must remember that corneal ulcers may appear very suddenly in these chronic trachoma cases, (as was illustrated in a case upon which Dr. T. A. Woodruff was about to do this

operation, in St. Luke's Hospital in this city, Chicago, Ill., U.S.A.). The eye looked perfectly quiet until the day set for the operation, when an ulcer was discovered. In this case if the ulcer had appeared a few hours later it would have been charged against the operation. Kuhnt claims that postoperative complications are exceedingly rare, and when they occur they are due to faulty *technic*.

The writer saw several cases where one lid had been operated upon and had entirely healed, but the patient had refused operation upon the other with resulting progress of the disease into ectropion, trichiasis, pannus, loss of vision, etc. No bad results were seen following the operative treatment.

These operations are part of the routine treatment and average at least ten in number daily. Such extensive clinical experience with good results in the treatment of this condition cannot fail to have great weight in favour of Kuhnt's methods.

Kuhnt claims to cure these cases in from one to three months, in contrast with six months to two and three years which are requisite for the methods that are now in vogue. In the working classes such a treatment as the latter would mean famine."

C. A. O.

V.—TREPHINING IN AFFECTIONS OF THE BRAIN.

Yvert, A.—Trehining and cerebral punctures in affections of the brain. (*De la trepanation et des ponctions cérébrales dans les affections du cerveau.*) *Recueil d'ophtalmologie*, avril, 1905.

Yvert's patient was a previously healthy soldier, *âgé de 22 ans*, who became indisposed, and five days later developed a scarlatiniform rash, which, however, disappeared next day. On the seventh day he developed a right-sided exophthalmos with dilated pupil, fixity of the globe, and diminished vision. The upper lid was much swollen, and there was intense pain on attempted movement of the eye and on pressure on the globe. The diagnosis of acute Tenonitis, probably of influenzal origin, was made. The treatment consisted of boric fomentations, leeches to the temple, salicylate of soda (90 grains in 24 hours), and hydrobromide of quinine ($7\frac{1}{2}$ grains night and morning). In three days the symptoms had disappeared, and vision was completely restored. When, however, the Tenonitis was at its height, the patient developed a sero-purulent discharge from the left ear, which was regarded as due to an influenzal otitis media. In the

course of three weeks this discharge entirely disappeared under treatment by warm antiseptic injections. When all appeared to be going on well, and the patient was allowed to get up part of the day, there was a sudden development of new symptoms, *viz.* : increase of temperature, specially in the evening, mental obsfuscation, depression, prostration, and intense frontal headache. Next day the temperature fell, but the cerebral compression increased from day to day, giving rise to vomiting, intense frontal headache, vertigo, slow pulse (35), constant mental confusion, some visual trouble, deafness, and irregular action of the heart. A diagnosis of cerebral abscess, secondary to the influenzal otitis media, was made. There were no localising symptoms, but by a process of exclusion it was thought that the abscess was situated in the temporo-sphenoidal lobe. As the symptoms became still more marked and the patient appeared moribund, it was decided to trephine over the temporo-sphenoidal lobe. The dura mater under the part opened bulged into the opening and showed no pulsation. A fine tenotome was passed into the brain in several directions. No pus was found, but about half an ounce of clear transparent fluid was evacuated from a cavity, which was taken to be a distended lateral ventricle ; when this was done there was a sudden and marked improvement in the pulse and respiration, which became practically normal. In four days the patient was bright, and all symptoms of compression were gone. After that there were occasional signs of recurrent compression, as mental confusion, slow pulse, associated with some œdema of the lids and exophthalmos on the right side. The symptoms completely disappeared under application of ice to the head, administration of calomel, and injections of serum. One month after the operation the patient could read newspaper print, but the discs, especially the right one, were slightly hazy and surrounded by a cloudy areola, and the veins were slightly tortuous. There was a small projection of pulsating cerebral matter under the trephine flap. About five weeks later the patient developed severe intermittent headaches, with loss of memory and considerable emaciation. Later, the pains in the head became constant, vomiting and paraplegia with inability to stand supervened, and notwithstanding a ravenous appetite, the patient became extremely emaciated. Treatment by ice bags, calomel, serum injections, and lumbar punctures were of no avail, and the patient died about fourteen weeks after the operation.

There was no *post-mortem* examination, but Yvert thinks it not improbable that the patient developed an intracranial tumour. In support of operative treatment for such cases he quotes Röhmer's statistics of his results of trephining in cases of cerebral compression :—

52 cases :

29 much improved ;

10 stationary ;

13 became blind.

Of five cases treated by Dianoux :—

3 died ;

1 was improved by craniectomy ;

1 was relieved by repeated lumbar punctures.

Yvert advises early operative interference in all cases of cerebral compression, whatever the cause may be. As a rule, it is better to try lumbar punctures first, and if these are not sufficient to relieve the symptoms, to proceed to craniectomy, with division of the dura mater. When the symptoms are severe and suggestive of cerebral abscess, the skull should be trephined at once, and search made for the purulent focus by means of punctures into the brain matter with a fine tenotomy.

J. JAMESON EVANS.

VI.—TREATMENT.

(*Eighth Notice.*)

- (1) Popow, V.—Influence of frynin on the eye. *Ophthalmic Review*, January, 1906.
- (2) Ovio, G.—Second contribution to the anatomico-pathological study of cauterisation. (*Secondo contributo anatomo-pathologico sulla causticazione.*) *Annali di Ottal.*, Vol. XXXV, 1906, fasc. 1-2, p. 58-64.
- (3) Meyer.—Credé's silver treatment in diseases of the eye. (*Weitere Mitteilungen ueber die Credé'sche Silbertherapie bei Augenkrankheiten.*) *Centralbl. f. prakt. Augenheilkunde*, Februar, 1906.
- (4) Brav, Aaron.—The therapeutic value of eserine in ophthalmic practice. *Therapeutic Gazette*, February 15th, 1906.
- (5) Pfahle, G. E., and Thrush, M. C.—Exophthalmic goitre treated with the Röntgen rays. *Therapeutic Gazette*, March 15th, 1906.
- (6) Brav, Aaron.—Acute glaucoma following the instillation of several drops of adrenalin in a cataractous eye. *American Medicine*, July, 1906.

- (7) Fischer, E.—Airol. *Centralbl. f. prak. Augenheilkunde*, August, 1906.
- (8) Marshall, C. R., and Neave, E. F. Macleod.—The bactericidal action of compounds of silver. *British Medical Journal*, August 18th, 1906.
- (9) Bailliart.—The organic salts of silver in ocular therapeutics. (*Les sels organiques d'argent en thérapeutique oculaire.*) *Bull. gén. de Thérapeutique*, 30 août, 1906.
- (10) Wray, Charles.—The treatment of iritis, interstitial keratitis, &c., by Acetozone. *Lancet*, September 8th, 1906.

(1) Popow has experimented with a 1% aqueous solution of frynин—that is to say, an extract from the cutaneous and so-called parotid glands of the toad. A proportion of sublimate was added to the solution of frynин, and the liquid was boiled before use. The immeditate effects of the agent when dropped into the eye included irritation, photophobia, blepharospasm, lacrymation, vasodilatation; and the remote effects, cedema, cloudiness of the corneal epithelium, anæsthesia of the conjunctiva and cornea, slight myosis, and increased diffusion into the antcior chamber, as determined by Bellarminow's method. On the other hand, the frynин produced practically no changes in refraction, accommodation, visual acuity, field of vision, or intraocular tension. Popow has performed a few operations upon the eye and its appendages under the influence of frynин.

S. S.

(2) Ovio completes his study on the use of the cautery in ophthalmic surgery (see THE OPHTHALMOSCOPE, September, 1906, p. 537) by describing his experiences of the galvano-cauterisation of corneal ulcers and abscesses provoked in rabbits by the intralamellar inoculation of pus, or of cultures of the staphylococcus. In comparing histological specimens from the healthy cornea touched with the cautery with the ulcerated cornea treated in the same way, it is easy to prove that in the first case reaction is moderate, leucocytic infiltration discrete, the activity of the leucocytes is manifest, and that proliferation of the tissue proper of the membrane contributes to rapid cicatrial repair. In the ulcerated cornea, on the contrary, infiltration is enormous, the tissue is purulent and necrotic, and cauterisation has no direct and immediate action. It shortens, all the same, the period of healing; the leucocytes, in particular, seem to acquire after cauterisation a renewed activity. Their aspect also

undergoes a change, no longer showing that of elements in a state of necrobiosis. The fixed cells of the corneal parenchyma also manifest a similar change. A. ANTONELLI.

(3) Meyer gives an account of his experiences in the treatment of eye disease, especially of purulent conjunctivitis and of trachoma, among the natives in the Chinese province of Shang Tung. He first tried dusting with itrol, but with indifferent results, probably because the itrol was unable to withstand the light, moisture, and heat that prevail in China. His results with a 5% solution of collargol (argentum colloidale), however, left little to be desired, and external inflammatory diseases of the eye receded under the use of that agent, applied by simple instillation, accompanied by gentle massage of the parts, and associated with a light gauze dressing. The application was repeated, as a rule, three times a day for three or four days. The bandage was then left off, and weaker solutions (1% to 2%) of collargol were applied, and, finally, the collargol was replaced by ordinary astringent remedies. Meyer concludes that in a concentrated solution of collargol we possess a sovereign remedy in all cases of acute conjunctivitis. As regards trachoma, acute and chronic, the treatment is commenced with 5% collargol, and copper salve is applied only when discharge from the eye has ceased. Meyer has also employed collargol in corneal ulcers, in injuries, and as a disinfectant prior to the performance of operations, such as evisceration of the eyeball. In panophthalmitis, however, collargol has failed to check the process, whether injected into the veins, beneath the skin, or into the rectum, or when administered by the mouth. Intra-vitreous injections have been eschewed, since Meyer fears that there may be a danger of rendering the vitreous opaque by deposition of the black colouring matter of collargol. S. S.

(4) After describing the physical qualities and the physiological action of physostigmine, Brav passes forward to consider its therapeutic uses. No new points are made, and the author concludes that at the present time the employment of eserine is mainly limited to cases in which it is desired to lower intra-ocular tension. Finally, he enumerates contra-indications to the use of the agent.

(5) Pfahle and Thrush report the cure of exophthalmic goitre in a woman, aged 36 years, after twenty-two 10-minute exposures to X-rays spread over a period of four months. In addition to the rays, several drugs—as iodine, valcrian, sumbul, asafetida, nitroglycerine, digitalis, belladonna, iron, and arsenic—were administered. The authors, nevertheless, believe that the results were due chiefly to the effects of the X-rays.

(6) Brav adds another to the list of cases in which adrenalin

has appeared to produce or to precipitate glaucoma. The symptoms were not relieved by eserine and the hypodermic injection of morphine, so that iridectomy was performed with good result, the cataractous lens being evacuated at the same time (V. 6/21). Brav concludes that adrenalin has a very limited sphere of utility in ocular therapeutics.

(7) Increased experience of airol induces **Fischer** to praise it as a dusting powder used four times a day in cases of severe corneal ulceration, such as may follow blennorrhœa or be met with in *ulcus serpens*. A little cocaine is first applied to the affected eye.

S. S.

(8) The conclusions reached by **Marshall** and **Neave** as a result of their enquiry into the bactericidal action of the various silver compounds, organic and inorganic, will come as somewhat of a surprise to those ophthalmic surgeons who employ collargol, and more particularly perhaps argyrol, upon a large scale.

The percentage of silver contained in the compounds commonly used was determined by the authors, with the following results :—

	Percentage of Ag.				
Collargol	86.6
Silver fluoride	81.7
Silver nitrate	63.6
Itrol	60.8
Actol	51.5
Argentol	31.2
Ichthargan	27.1
Argyrol	20.0
Albargin	13.4
Nargol	9.6
Largin	9.4
Novargan	7.9
Protargol	7.4
Argentamine	6.4
Argonin	3.8

The bactericidal effect was determined both on a mixed culture and on a pure culture of *staphylococcus pyogenes aureus*. As regards the latter, the familiar thread method was employed. The antiseptic action of the various compounds was determined in two ways :—(1) by observing the time taken by minced cooked beef to putrefy in presence of silver compounds of known strength; and (2) by inoculating an agar medium containing a definite quantity of the various silver compounds. Finally, Marshall and Neave carried out certain ingenious experiments for the purpose of determining the power of diffusion possessed by the different compounds.

The summary of the entire investigation is stated by the writers in the following words :—

The experiments show that as regards bactericidal action the various silver compounds investigated fall into three groups : (1) Those which are powerfully

bactericidal; (2) one—nargol—much less powerfully bactericidal; (3) two—argyrol and collargol—which possesses practically no bactericidal action whatever. The first group includes most of the substances investigated, namely, silver nitrate, silver fluoride, actol, itrol, argentamine, argentol, albargin, argonin, ichthargan, largin, novargan, and protargol. The bactericidal action of these in solutions containing the same percentage of combined silver is closely similar, and it is practically impossible to place them in any order of activity which would be true under all circumstances.

As argyrol and collargol are not bactericidal, it is evident that the amount of silver which a compound may contain is no criterion of its bactericidal power. Moreover, in view of the results obtained with argyrol, it seems impossible to attribute the good effects which many clinicians have obtained with it to its bactericidal action.

(9) The conclusion of Bailliart's communication is that despite the pain, discomfort, and other drawbacks of silver nitrate, that agent still remains our best means of treating cases of serious ophthalmia. Protargol and argyrol, however, are efficacious substitutes for the nitrate salt in milder cases, and present the advantage that their use may be entrusted to the patient or to those about him. The newer salts are therefore precious therapeutic agents, and destined to render great service in practical ophthalmology.

S. S.

(10) Wray warmly advocates what he calls the "Acetozone-hydrotherapeutic" treatment of external diseases of the eye. Details of the method follow:—the patient drinks a tumbler of water, and takes a three grain capsule of acetozone at once. He then walks briskly for ten minutes, and after drinking a second glass of water, again walks for ten or fifteen minutes. Four doses of acetozone are taken daily, namely, before breakfast, in the middle of the morning, in the middle of the afternoon, and in the evening. Wray has employed this treatment with satisfactory results in forty-five cases of iritis, interstitial keratitis, etc., as well as in one case of syphilitic optic papillitis and two cases of sympathetic ophthalmitis*.

VII.—OPERATION FOR HIGH MYOPIA.

Sidler-Huguenin.—Ueber Spätresultate von 75 Augen, die wegen hochgradiger Myopie operiert wurden. *Correspondenz-Blatt f. Schweizer Aerzte*, I Juin, 1906.

From the statistics given by Huber of the results of Prof. Haab's operations for myopia during ten years, Sidler-Huguenin has collected the most important points and formulated conclusions thereon. The object of the work is to compare the late results, observed two to twelve years (mostly three to seven)

*For a reference to this method of treatment, see THE OPHTHALMOSCOPE, June, 1906, p. 356.—EDITORS.

after the operation, with the favourable ones alleged by Fukala, shortly after the operation, *viz.*, that vision was increased two to six fold.

A hundred eyes had been operated upon in the ten years, and 75 of these came up for examination for the purpose of this enquiry. The ages of the patients were mostly between 17 and 28, *i.e.*, beyond the age when myopia tends to progress rapidly.

Briefly the results were as follows :—

As regards **vision**, operation was undoubtedly successful, since 76% now see better, although 2·6% see the same, and 21·4% worse than before. Non-improvement is accounted for in two cases by the presence of a macular affection before operation. The above result is not as good as that attained shortly after the operation, since then 85% saw better, 8% the same, and 7% worse than before. The degree of improvement is given as six to seven fold in three cases, four and under six fold in five cases, two and under four fold in 34 cases, one and under two fold in 43 cases, or more generally 1·5 to three fold in 65% of the cases. This result was obtained shortly after the operation.

As regards the **refraction**, lengthening of the eyeball still continued in many cases, as will be seen by the following comparison—A = 1st examination and B = 2nd examination.

$\Lambda \left\{ \begin{array}{l} \text{Emmetropic} \dots 17\% \\ \text{Hypermetropic} \dots 71\% \\ \text{Myopic} \dots \dots 12\% \end{array} \right.$	$B \left\{ \begin{array}{l} 33\cdot3\% \\ 49\cdot28\% \\ 17\cdot39\% \end{array} \right.$
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As regards **complications**. The conclusion is that these are certainly not avoided by the operation, but perhaps rather favoured, since they occurred more frequently in eyes which had been operated upon than in unoperated eyes. Still, it must be borne in mind that the operated eye was doubtless the worse eye, and therefore more prone in any case to complications. The average occurrence of retinal detachment in myopic eyes is 3%. Huguenin finds in these cases the average is 4%, and a study of the literature on the subject fixes it at 3.14%, agreeing, therefore, in finding the tendency greater in operated eyes than in unoperated. Huguenin reckons 1% therefore of retinal detachment in operated eyes as due solely to the operation. He adds to this 1·66 % of eyes lost after operation as due to infection, 0·69% as due to glaucoma, and 1% to 1·5% as due to affection of the retina and choroid, making a total of 5% of eyes lost solely through the operation.

Since Forster, Priestley Smith, Jackson, Harlan, Pfalz, Heine, Fuchs, Sattler, and others have found that early and full correction is the best method of checking the progress of myopia, and its complications, even in high myopia, only cases above 22-25D.

should be operated upon. If glasses are given early and gradually increased in strength, —8 D. to —10 D. can be worn, and for distance an additional glass may be given to add to the former. Cases in which there is no myopia in one eye, but marked myopia in the other are suitable for operation. It is best to operate only on one eye, and if complications are present in one eye, the other should not be touched.

In a note at the end of his paper Huguenin states that three more cases of retinal detachment have since come to his knowledge, occurring among the 75 operated eyes, bringing his total loss of eyes due to retinal detachment to 5% instead of 1% over the normal 3% occurring in myopic eyes.

CONCLUSIONS.

1. Lens extraction cannot be regarded as a palliative in the progress of myopia and its deleterious complications.
2. There is a definite risk associated with the operation, which should be explained to the patient.
3. The same precautions need to be taken after as before operation to spare the eyes.
4. The operation should only be recommended to patients who cannot get sufficient sight from the help of glasses to follow their occupations.

ROSA FORD.

VIII.—MISCELLANEOUS.

Mörchen.—Appearances in diseased conditions of the optic thalamus, with special reference to ocular symptoms.
(*Die Erscheinungen bei Erkrankungen des Schügels mit spezieller Berücksichtigung der ocularen Symptome.*)
Zeitschrift f. Augenheilk., X, Heft 4, Oktober, 1903.

Mörchen has collected the cases on record, some 56 in number, of diseased conditions of the optic thalamus, with the object of obtaining from a comparison between them, some unity in the points of view from which the function of this part of the brain may be regarded, and its affections diagnosed. His results in this direction, are, however, in the main of a negative character. He sums them up at the close of his paper in the form of the following propositions:—

1. The clinical mode of observation with regard to diseases of the optic thalamus has hitherto furnished no sufficient points of support for a theory of the construction and function of the optic thalamus.

2. A constant and typical combination of symptoms from disturbances of the optic thalamus does not appear to

exist ; neither does any one symptom—unless perhaps that of mimetic facial paralysis—seem to be characteristic.

3. A diseased condition of the optic thalamus in individual cases—especially those in which mimetic facial paralysis occurs—can only be certainly diagnosed from the other symptoms.

4. The thalamus in any case has no essential significance with regard to the apparatus of vision.

A. BIRCH-HIRSCHFELD.

Claiborne, J. H., and Coburn, Edward B.—Experiments to determine the value of formalin in infected wounds of the eye. *Medical News*, November 21st, 1903.

J. H. Claiborne and E. B. Coburn detail a number of experiments with formalin in streptococcus infection of the ciliary region and vitreous chamber in rabbits, and reach the following conclusions : Formalin, 1 : 500, may be injected into the vitreous with only momentary disturbance of the eye. Three minims of a turbid solution of streptococci in the vitreous will cause panophthalmitis. The same result is produced by penetrating wounds in the vitreous with infected instruments. Infections of the vitreous and ciliary region do not necessarily destroy the eye. At times recovery is spontaneous. Formalin, 1 : 1,000, when injected in the vitreous has no influence on streptococcus infection. The results reached warrant the treatment of beginning infections by injections into Tenon's capsule of 1 : 1,000, or even 1 : 500, formalin solution.

American Medicine, November 28th, 1903.

Wilmer, Wm. Holland.—Report of a case of double traumatic optic neuritis, followed by absolute blindness and recovery. *Trans. American Ophthal. Society*, Vol. X (1903), p. 165.

A girl of eight years lost the sight of one eye three days after a blow upon the nose from a baseball bat, and on the next day the sight of the second eye began to fail. When seen by Wilmer nine days after the accident, the condition was as under : V. = O ; pronounced double optic neuritis ; pupils widely dilated and motionless ; exophthalmos of both eyes. No fracture could be detected, although there was ecchymosis of the conjunctiva of one eye. The injury had been followed by copious bleeding from the nose. Fifty days after the accident, sight had become normal, and the papillitis had wholly subsided. The cause of the neuritis is believed by Wilmer to have been pressure of a haemorrhage, due to fracture of the middle fossa of the skull, upon the optic chiasma.

Ahlström, G. — **Sympathetic ophthalmitis after Panophthalmitis.** (**Sympathische Ophthalmie nach Panophthalmitie.**) *Centralbl. f. prak. Augenheilkunde*, Juli, 1904.

Ahlström recounts the case of a patient, aged 40 years, whose left eye was destroyed by panophthalmitis following serpiginous ulcer of the cornea. The eye, however, did not quiet down, and within five months the right eye showed signs of an active iridocyclitis. The left eye was therefore removed, and vigorous treatment with inunctions of mercury was undertaken. But treatment could not be continued, as the patient would not remain in the hospital. The final result was that the right eye was also lost.

A. LEVY.

Lafon and Delord. — **Tumour of the base of the skull. Neuro-paralytic keratitis with lagophthalmus.** (**Tumeur de la base du crâne.—Kératites neuro-paralytique avec lagophthalmie.**) *Revue générale d'ophtalmologie*, août, 1904.

Lafon and Delord record the case of a child of 9 years, in whom the very numerous palsies, *viz.*: of the right third (branch to internal rectus), the left fifth, sixth, and seventh and perhaps eighth nerves, and other symptoms, pointed to a tumour—presumably tuberculous—of the base of the skull, involving the nuclei in the floor of the fourth ventricle. Keratitis was present in the left eye which the authors attribute to a double cause, namely, lesion of the fifth and of the seventh nerves (neuro-paralytic and lagophthalmic keratitis). No autopsy was made.

ERNEST THOMSON.

Natanson. — **Experimental investigations on the alterations in the lacrymal gland after extirpation of its excretory ducts.** (**Experimentelle Untersuchungen ueber die Veränderungen der Tränendrüse nach Extirpation Ausführungsgänge.**) *Klin. Monatsbl. f. Augenh.* 1904, p. 541.

Natanson's experiments were on dogs, from which he extirpated the excretory passages of the tear-gland, examining the gland after a varying lapse of time. The most conspicuous changes were found in the epithelia, which were reduced, their protoplasm nearly vanished and degenerated. Six weeks was sufficient to shew this epithelial degeneration.

A. BIRCH-HIRSCHFELD.

Ayres, S. C. and Ayres, W. Mc. L. — **Epibulbar papilloma.** *American Journal of Ophthalmology*, August 1905.

- Koyle, Frank H.—Muscle testing in refraction. *Ophthalmic Record*, September, 1905.
- Murray, William R.—A case of pseudo-pterygium and symblepharon, relieved by the use of Thiersch grafts. *Ophthalmic Record*, September, 1905.
- Law, James.—Comparative anatomy of the eye. *Ophthalmic Record*, September, 1905.
- Eberardt.—Indirect injury of the eyeball.—*Ophthalmic Record*, September, 1905.
- Nagel, C. S. G.—Methyl alcohol amblyopia, with special reference to optic nerve. *Journal of the American Medical Association*, November 18th, 1905.
- Roberts, W. H.—The correction of exophoria by development of the interni. *Journal of the American Medical Association*, August 12th, 1905.
- Weeks, John E.—Cylindroma of the orbit and lids, with report of cases. *Journal of the American Medical Association*, September 30th, 1905.
- Tiffany, Flavel S.—Differential diagnosis of intraorbital tumors. *Journal of the American Medical Association*, September 30th, 1905.
- Pansier.—The ophthalmological practice of Daviel (1735-1744). (*La pratique ophtalmologique de Daviel, 1735-1744.*) *Ann. d'oculistique*, T. CXXXIV, p. 338, novembre, 1905.
- Rolland.—The theory of skiascopy. (*Théorie de la skiaskopie.*) *Ann. d'oculistique*, T. CXXXIV, p. 428, décembre, 1905.
- Rolland explains the size and shape of the shadow in skiascopy and the rapidity of its motion as due to differences in the size of the area illuminated under different refractive conditions.
R. J. COULTER.
- Deschamps.—A note on the social value of eyes damaged by wounds. (*Note sur la valeur sociale des yeux dépréciés par blessure.*) *Annales d'oculistique*, T. CXXXIII, p. 112, février, 1905.
- Deschamps considers that the results of the attempts made at the meeting of the *Société française d'Ophthalmologie* in May, 1904, and at the International Ophthalmological Congress

in September, 1904, to estimate the value of the economic damage resulting from injuries to the eyes, were unsatisfactory, because the subject was approached from the mathematical rather than the clinical side. In medico-legal reports Deschamps seldom states the visual acuity, as he considers that by doing so he is liable to mislead the judge. He gives instead an estimate of the capacity of the eye for work regarded from the most general point of view. This he calls the social value of the eye. In estimating it he does not take into account the occupation of the patient, because he thinks it is always possible that an accident to an eye may prevent the injured man from improving his position.

R. J. COUTLER.

Guillery.—Further researches on the physiology of the form sense. (*Weitere Untersuchungen zur Physiologie des Formensinnes.*) *Archiv für Augenheilkunde*, Bd. LI, p. 209, 1905.

Guillery in this article continues his interesting researches in visual physiology. The article deals with the importance of remembering that other factors enter into the determination of the form sense than the angle subtended by the figure looked at, and he considers various surfaces of equal area but of different form and shows how they vary in clearness of perceptibility. He points out how inadequate the ordinary test types are as a measure of form sense. The paper is one which does not lend itself to condensation readily. Inadequate as the ordinary test types may be for purposes of scientific measurement, their convenience for practical purposes is so great that they will not readily be replaced.

LESLIE PATON.

Berry, G. A.—A new test for visual acuteness. *British Medical Journal*. August 26th, 1905.

Shaw, Cecil, E.—A case of amblyopia, apparently toxic, following influenza. *British Medical Journal*, August 26th, 1905.

On the second day of an attack of influenza the sight of a man, aged 20 years, began to fail, and when the patient was examined by Shaw, four days later, it was found to be extremely defective (R.=fingers and L.=nil), without ophthalmoscopic changes. The pupils were widely dilated. In the course of the illness, the left internal rectus became paretic, the lids dropped, paraesthesia of the arm and leg appeared, and an atactic gait developed. The patient's memory failed and he became subject to attacks of vomiting. After the illness had lasted about four months, muscular strength and normal health were recovered, but sight, although much better than it had been,

still remained defective (R.V.=1/24 and L.V.=1/9). Doubtless, as Shaw surmises, the symptoms were the outcome of a toxic infection. It is a pity, by the way, that the case was not followed to its conclusion.

Snell, Simeon. — On cases of sympathetic ophthalmitis arising after enucleation. *Trans. Ophthalmological Society*, Vol. XXV (1905), p.77.

Snell reports three cases of sympathetic ophthalmitis, arising after enucleation of the injured eye in patients, of whom two were aged respectively 10 years and the third 26 years. Two were males and one was a female. Two of the cases terminated in blindness and one in recovery. The period between enucleation and ophthalmitis was 16 days, 23 days, and "possibly a week or rather more." In concluding his communication Snell remarks:—"In a district where eye injuries are frequent and many of a severe character, the number of eyes demanding enucleation has been, in my practice, necessarily large, and a rough calculation gives the percentage of the instances of post-excision ophthalmitis as about 0·4 per cent."

Bennett, F. J. — Eye affections of dental origin. *British Medical Journal*, September 9th, 1905.

Eales, Henry. — The Middlemore Lecture, 1905. *Birmingham Medical Review*, January, 1906.

In the Middlemore Lecture for 1905 Eales ranges over a variety of subjects, including ethmoid disease, affections of the sphenoidal, cavernous, and frontal sinus, diseases of the antrum, lacrymal abscess, and chronic obstruction in the lacrymal passages. The lecture is interesting, and deserves to be read in the original.

Aitken, Charles J. Hill. — The ophthalmoscope in the hands of the general practitioner. *Transvaal Medical Journal*, July, 1906.

Daxenberger, Dr. F. — A simple electric ophthalmoscopic lamp. (Eine einfache elektrische Ophthalmoskopier-lampe). *Wochenschrift für Therapie und Hygiene des Auges*, 8 Februar, 1906.

Neustatter, Otto. — Incrustations caused by peroxide of hydrogen. *Ophth. Klinik*, Januar, 1906.

Neustatter has noticed several times that sharply-circumscribed, yellowish spots appear upon the conjunctiva after instilling a 3% solution of peroxide of hydrogen. They disappear in about an hour's time. No investigation into the

nature of these spots could be undertaken. Why they are called "incrustations" does not precisely appear.

PERCIVAL J. HAY.

Possek, Rigobert.—Spontaneous replacement of a dislocated lens. (*Spontane Reposition einer traumatisch subluxierten Linse.*) *Klin. Monatsbl. f. Augenheilkunde*, April-Mai, 1906,

Possek saw a student who had received a blow in his eye. There was an erosion of the cornea, some blood in the anterior chamber and vitreous, traumatic mydriasis, and a slight dislocation of the lens upwards and forwards, evidenced by the anterior chamber being shallow in the upper and deep in the lower half, by myopic astigmatism, and by the appearance of the lower margin of the lens and zonular fibres in the pupil. On the following day the signs of dislocation had all disappeared. The spontaneous return of a dislocated lens is a very rare event, and one not easily explained.

C. MARKUS.

Raehlmann, E.—A new theory of colour perception based upon anatomical and physical considerations. (*Eine neue Theorie der Farbenempfindung auf anatomisch-physikalischer Grundlage.*) *Ophth. Klinik*, April 5th, 1906.

A study of the phenomena associated with the production of stationary waves by reflexion from plane surfaces, has led **Raehlmann** to formulate a new theory for the purpose of explaining how the energy of light waves is transmitted to the sensory end-organs in the retina. He points out that it has hitherto been generally accepted, that the waves of light pass through the layer of nerve fibres, then enter the region of rods and cones and are transmitted by the latter to the conducting apparatus. Thus, apparently, the energy of light travels through the conducting layer and then acts in the receiving end-organs in a direction opposite to the one in which it is transmitted to the former. On the other hand, the direction of transmission is steadily maintained in the case of all the other special senses, a law to which, the author proceeds to show, the retina really also conforms. The outer segments of the rods and cones are much more highly refrangible than the inner ones and act as transmitters, in that they reflect the greater part of the light into the inner, the percipient segments, in the form of stationary waves. These vary in length according to whether the light is monochromatic, a mixture of two, or three, or more colours. In other words, each colour or mixture of colours is characterised

by stationary waves peculiar to itself, having a fixed position in the inner segment, thus stimulating it in a certain definite manner.

PERCIVAL J. HAY.

Stephenson, Sydney.—A note upon some unusual forms of migraine in children. *Medical Press and Circular*, April 18th, 1906.

The particular cases described by Stephenson may be grouped under three heads:—(1) Migraine preceded, accompanied, or followed by temporary aphasia; (2) Migraine replaced by bouts of vomiting; and (3) Migraine associated with alterations of sensation or disturbances of mobility in the upper or the lower extremities.

Roll, G. Winfield.—A case of accidental division of the optic nerve. *Lancet*, April 21st, 1906.

A girl, sixteen years of age, received a knife thrust in the lower lid of one eye near the inner canthus. There was a protrusion of orbital tissues through the wound in the lower eyelid, complete blindness, dilatation of the pupil, and proptosis. The fundus appeared to be normal. Twelve days after the injury, however, there was pallor of the optic disc. Roll surmises that the optic nerve had been divided, partially or completely, behind the point of entry of the central artery.

Moissonnier. — Osteo-periostitis consecutive to frontal sinusitis. (*Ostéo-périostite consécutive à une sinusite frontale.*) *Archives d'ophtalmologie*, août, 1906.

Moissonnier, following in the footsteps of Panas, insists upon the fact that osteo-periostitis of the upper-inner part of the orbit is now and then not a syphilitic or tuberculous manifestation, but a sign of frontal sinusitis. He reports a relapsing case of this sort in a girl of seventeen years, where the sinusitis was believed to be connected with a recent attack of diphtheria, although the pus contained staphylococci alone. S. S.

Inouye, Michiyasu. — On antipyrin-keratitis. (*Ueber Antipyrinkeratitis.*) *Klin. Monatsbl. f. Augenheilkunde*, Juli-August, 1906.

Inouye refers first to a case in which antipyrin, taken internally, was responsible for an erythematous rash and the occurrence of corneal erosions. He then reports his own observation of a similar untoward event in a lady, *æt.* 48 years, whose eyes became very painful after a dose of 2 grammes of antipyrin. The lids and the mucous membranes of the mouth, tongue, vulva, and anus were much swollen, and both corneaæ showed numerous small marginal infiltrations; these, together with the other symptoms, soon disappeared. C. MARKUS.

REVIEWS.

E. Merck's Report on the advancements of pharmaceutical chemistry and therapeutics. Volume XIX, 1905. Darmstadt, May, 1906.

Merck's *Report* for the year 1905 has just reached us, and, as usual, is replete with scientific information concerning the latest products of pharmaceutical activity. A glance at its pages will convince any impartial reader that the *Report* is the outcome of an honest desire to furnish medical men and others with a brief and unbiased review of the therapeutic acquisitions of the last twelve months. There is no attempt whatever to advertise the special products of the great Darmstadt firm! No ophthalmic surgeon can afford to be without the *Report*, a copy of which is sent free on application to Merck's London office, No. 16, Jewry Street, E.C.

Ueber die Behandlung der Netzhautablösung. (The Treatment of Detached Retina.) By W. UHTHOFF. Halle : C. Marhold. 1906.

In this short but useful monograph on the treatment of detachment of the retina, Uhthoff reviews the methods adopted from time to time during the last fifty years. We learn that almost everything conceivable has been tried to induce the retina to resume its normal position. Advocates of medical and surgical treatment have vied with each other in this respect, and yet, unfortunately, little or no advance has been made since v. Graefe's time. The longer the trial of any plan of procedure, the smaller the percentage of successes, until it diminishes almost to vanishing point. Deutschmann's operation at present seems to be meeting with the same fate. If we turn from the experiences of others to those of the author of the paper under review, it is, to say the least, not a little disconcerting to find that out of 422 cases, 4·25% recovered as the result of medicinal or surgical treatment, and that 4·25% healed spontaneously. At the end of half a century of experiment, the most successful plan of dealing with the condition is still one of "masterly inactivity," both on the part of the surgeon and the patient. Uhthoff advises, and we think rightly so, that rest, etc., should be given a fair trial first, before any cure by operation is thought of.

A First German Course for Science Students. By H. G. FIEDLER and F. E. SANDBACH. London : Alexander Moring, Ltd., The De La More Press, 32, George Street, Hanover Square, W. Price 2/6 net.

As stated in the preface, this invaluable little work is intended for the use of science students who wish to acquire a sufficient knowledge of German to enable them to read the scientific literature of that language. It is divided into three parts, *viz.*, reader, grammar, and vocabulary.

The first-named consists of connected pieces of prose dealing with chemistry and physics, and introduces technical words and phrases not occurring in ordinary literature, which, although diligently sought for, are not to be found in the dictionaries ordinarily at the command of the scholar. The students' efforts at comprehension are also aided by a generous allowance of clear unpretentious illustrations. The second—the grammatical—portion of the work, is excellent by virtue of the conciseness of the rules, and the fact that the examples chosen to illustrate them are scientific, and thus likely to go home to the brain of the student whose *forte* is science, not language. The various types used in the printing also aid in this object.

The book concludes with a short but sufficient vocabulary of words and their combinations which are in common use in the laboratory and lecture room.

We earnestly hope that the publication will receive the welcome it merits, and soon be followed by the "Second Course" promised, as well as by volumes suited to the requirements of students of other branches of science, especially the ophthalmological.

The Ophthalmoscope and How to Use It. By JAMES THORINGTON, A.M., M.D. London: Rebman, Limited, 129, Shaftesbury Avenue, W.C. 1906. Price, 11s. net.

Dr. James Thorington is well-known to the medical profession as the writer of a successful text-book on *Refraction*, recently reviewed favourably in the columns of THE OPHTHALMOSCOPE.

The attractive-looking volume now before us does not improve on a closer acquaintance, and, to speak candidly, is one of the most irritating compilations we have ever read. It is intended for students and general practitioners, who (to quote the curious language of the author) "can seldom have the time to study a large book on the diseases of the eye in which the subject is too deeply embedded for immediate comprehension."

The book begins with an account of the ophthalmoscope, and the way in which that instrument should be used. Then follow chapters on optics, ametropia, anatomy and anomalies of the eye, the normal fundus oculi, visual acuity, and the field of vision. Finally, separate sections are devoted to changes in the media, and to diseases of the retina, optic nerve, and so forth. The book is lavishly illustrated with 73 pictures and

12 coloured plates, the latter the work of Miss Margaretta Washington, the well-known and accomplished American ophthalmological artist.

The fault of the book, as it seems to us, is the tortuous English in which much of it is written. It abounds in curious expressions. Dr. Thorington (p. 15) speaks of using the ophthalmoscope to examine "the live eye." We learn (p. 19), *à propos* relaxing the accommodation, that "too many students will insist upon squinting one eye shut." Dr. Thorington's style is not infrequently obscure, as, for instance, "This is usually a partial dislocation, and therefore not complete" (p. 104); "The peripheral field is naturally reduced in the direction of the overhanging brow and in the direction of the nose, and therefore it is not so restricted downward and outward" (p. 145); "The vessel walls having their lumen diminished will naturally reveal this condition, whenever there is any crossing over of the vessels as the blood current is diminished at this crossing, if there is any pressure exerted, and then the vessel again refills after the crossing" (p. 152); and, finally, "A growth beneath the retina would give a somewhat similar picture to that of detachment as far as the curves in the vessels are concerned, but they would very likely maintain their light streak, which they would not do in a fluid detachment (*sic!*), and there would not be that wavy appearance to the retina and vessels as in the fluid detachment, neither would there be that motion to the detachment when the eyeball was suddenly rotated, and furthermore when the retina is raised up by a growth from the choroid it has more definite or sharply cut edges, as compared to a detachment from fluid" (p. 221). After these quotations, the reader will not be astonished to find that the author speaks of an eye as "suffused with the lacrimal fluid" (p. 160) when he merely means that the eye was filled with tears, or that examples of the so-called "split infinitive" are scattered with merciless hand over the pages of the book.

Dr. Thorington's statements, as a rule, are trustworthy. Still, it is hardly correct to state, as he does, that the cherry-red spot seen in cases of embolism of the central artery of the retina "is caused by the red of the choroid appearing through the retina at the macula" (p. 168), or that opaque nerve fibres never appear at the macula (p. 107). The statement that synchysis scintillans "is a rare condition before the age of fifty" (p. 139) implies that it is common after that age, which, of course, is not the case. Once more, the statement made on page 227 to the effect that "there is no relief" for retinitis circinata cannot be defended, in view of the cases published by de Schweinitz, Doyne, and others, where the changes have been known to disappear, wholly or in part, under treatment.

Misprints are infrequent. We have noticed only a few : "Sojous" for "Sajous" (p. 101); "Media" for "medium" (p. 84); "Practicing" for "Practising" (p. 34); "Untoff" for "Uhthoff" (p. 239); "Warren Tay" for "Waren Tay" (p. 227); "development" for "develop" (p. 107); "Argyll-Robertson" for "Argyll Robertson" (p. 252); and "Euthalamin" for "Euphthalmin" (p. 17). President Roosevelt himself would be scarcely prepared, we fancy, to defend the spelling of the last word !

Dr. Thorington's book has evidently been prepared in haste. We can only trust that it may be repented at leisure.

Herpes Zoster Ophthalmicus. Von DR. OSTERROHT. Halle : Carl Marhold. 1907. Price, 8d. Pp. 28.

This is one of the occasional ophthalmic pamphlets issued by Prof. D. A. Vossius, of Giessen. In it Dr. Osterroht points out that herpes is a disease that interests the neurologist, the dermatologist, and the ophthalmologist. It occasions considerable distress, and, when it affects the eye, a more unfavourable prognosis must be given than in other regions on account of the impairment of vision that so often results. Herpes zoster constitutes, according to Dr. Hoennicke, one per cent. of all skin affections ; it attacks equally males and females ; and is most common between the ages of 15 and 30. It affects those regions of the body which are most freely supplied with nerves, and, in particular, attacks the area of distribution of the fifth nerve, the first or ophthalmic division being most liable, then the superior maxillary, and then the third division. Galezowski found that herpes zoster ophthalmicus occurred 14 times in a total of 36,064 eye cases seen in the course of eight years. It is agreed that it is most common between the ages of 50 and 70, and is twice as frequent in men as in women. The aspect of the disease is quite characteristic, but it presents various grades of severity, so that, whilst the vesicles are sometimes small and soon heal up, leaving little or no trace, they may be of large size, constituting the herpes zoster bullosus of Lesser, or may present and leave deep ulcerations which the author has described under the name of herpes zoster gangrænosus. The part where the vesicles appear is red, and the temperature may be 2° C. higher than normal. The contents of the vesicles, which arise in the course of a few hours, are at first clear, but soon become cloudy and purulent, and in the course of a few days dry up, leaving brown scabs. The lymphatic glands in the neighbourhood, as the preauricular, are swollen and tender. Paræsthesia and severe neuralgia are experienced, and are very persistent symptoms. The lacrymal nerve is sometimes implicated, and in such cases

there may be considerable lacrymation. The disease is limited to one side. The most notable complications are ptosis, which may proceed from œdema of the lids or from paralysis of the levator palpebrae, lagophthalmus from paralysis of the branch of the seventh distributed to the orbicularis: implication of the sympathetic, shown by the condition of the pupil; the super-vention of iritis; and paralysis of the third, fourth, or sixth nerves. Hutchinson's statement that the globe is only affected when the nasal region is the seat of the disease, though generally, is not always, correct. All parts of the eye may be affected in *herpes zoster ophthalmicus*. The conjunctiva is sometimes the only part attacked. Generally speaking, it is merely congested and slightly swollen, but marked chemosis is often present, with increased secretion, so that the case resembles one of catarrh of the conjunctiva. Vesicles are sometimes seen on the conjunctiva. The affection of the cornea varies considerably in degree—in the slightest cases vesicles visible with a lens appear in groups both at the margin and on the surface. These have a cloudy area around them, and leave an ulcerated surface when they burst. The vesicles irritate the eye and cause lacrymation. In more severe cases deep ulcerations and even *ulcus serpens* may develop and be very persistent. Infiltration of the cornea in limited patches may also occur without loss of substance. The sensitiveness of the cornea is sometimes, but not always, impaired.

In discussing the pathological anatomy of *herpes zoster*, the author gives a brief account of the views at present accepted from the time of v. Bahrenspring, who first advanced the statement '*Zoster nervos periphericos non sequitur*', and demonstrated that it is an affection of the nerve roots of the intervertebral ganglia, and of the ganglion Gasserianum, to that of Head and Campbell's researches in 1900, which were founded on the examination of 21 cases, and supported v. Bahrenspring's observation. The general result seems to be that, as a rule, in *herpes*, acute inflammation of the spinal ganglia occurs with secondary degeneration of the nerve roots, and at a later period sclerosis of the nerve fibres in the region of skin affected. In *herpes* of the face the Gasserian ganglion is inflamed and secondary degeneration of the trigeminal roots follows. Exceptional cases, however, have been reported. Neuritic changes have been seen by several observers in the nerves, whilst the intervertebral ganglion has to all appearance been normal, which has led Wilbrand and Saenger to maintain that the disease is essentially an inflammation of the nerves, which may or may not affect the ganglia of the root or the ganglion of

Gasser, and may implicate both sensory and motor nerves. The investigations that have been made on the vesicles show that they are intra-epithelial and due to degenerative changes, tumefaction, and necrosis of the cells of the rete Malpighii ; there are also infiltration of the papilla with small cells, and distension and upheaval of the corneal layers, with exudation containing numerous polynuclear bodies. At a later period septa form in the vesicles, which disappear with increase of the exudate. When the cornea is affected, similar conditions are met with, but there is loss of substance owing to ulceration of the floors of the vesicles, which is subsequently repaired, leaving more or less deep opacities formed by the cicatricial tissue.

In regard to the aetiology of herpes, cases are on record which show that it may follow injury, or it may have a toxic origin, or be apparently occasioned by some disease affecting the system generally. When due to a mechanical cause the lesion may be either peripheral or central. Thus, it has not unfrequently been observed after the extraction of teeth, when it is, of course, of peripheral origin, and after blows and injuries to the head as well as consecutive to pathological changes in the skeletal bones, exemplified in periostitis, caries, and exostoses, and it has been observed coincidently with tumours, abscesses, aneurism of the internal carotid, and varix of the cavernous sinus. Amongst the toxic agents, herpes zoster has not unfrequently been seen when arsenic has been prescribed in large doses as a remedy for psoriasis and lichen ; after ergotin given for metrorrhagia, and after the use of vaginal injections of corrosive sublimate, and might, of course, attack the ophthalmic region. Herpes in this region has been noticed in poisoning with carbonic oxide, and Eppstein records a case where of two brothers who partook of mussels, one had an attack of urticaria and the other suffered from gastric irritation and herpes zoster ophthalmicus. The attacks of this disease that accompany gout and diabetes are probably due to auto-intoxication. Amongst the general affections of the system the conditions that may be enumerated as causes are, exposure to cold, causing rheumatism, and there is a widespread belief that sudden fright or alarm may be an efficient agent in inducing an attack. Diseases of the central nervous system are associated with herpes zoster, such as hemiplegia, tabes, and syringomyelia and acute infectious affections like pneumonia, influenza, diphtheria, typhus, articular rheumatism, endocarditis, and the various forms of tuberculosis. M. Osterroht agrees with L. Merck that in almost all cases the nervous system must be affected, and that the lymphatic system plays a very important rôle in its production.

The diagnosis presents little difficulty if the features of the

disease are known unless these are concealed by cicatrices on the cornea or by the concurrence of paralysis of the facial nerve. The prognosis when the skin alone is affected is favourable, but when the eye is implicated, a guarded forecast should be given, since not only may destruction of that organ take place, but the attack may be the expression and forerunner of serious brain mischief. The neuralgia which supervene on herpes zoster ophthalmicus is often very obstinate.

In reference to treatment M. Osterroht agrees with Lesser that therapeutic measures are of but little service whilst the disease is developing. Antiseptic powders like magnesia, bismuth, zinc oxide, xeroform, and iodoform or ointments may be applied as desiccants, to which may be added such anti-analgesics as cocaine and dionin, and if the pain be very severe morphia must be given. Electricity and hydrotherapy may be tried when pain is persistent. In the acute stage antipyrin and preparations of salicin are sometimes useful; preparations of silver and iodine are also sometimes effective; Durand has recommended adrenalin. The eye requires the usual topical treatment, but the treatment of the system generally must on no account be overlooked.

HENRY POWER.

NOTES AND ECHOES.

Obituary. THE death is announced of Dr. F. Rymowicz, of Warsaw, once Professor of Ophthalmology in the University of Kazan.

* * * *

Appointments and Prizes. DR. BEST has been accorded the title of professor in Giessen. Dr. Cirincione has been made Professor of Ophthalmology in Palermo, and Dr. Lobanow in Tomsk. Among other recent appointments may be mentioned that of Franz Schieck as professor in Göttingen, and George H. McLaren and J. G. Macdonald as sub-inspectors in connection with the ophthalmic hospitals in Egypt. The appointments obtained by the two gentlemen last named are tenable for two years, at a salary of £510 per annum with certain allowances. Mr. McLaren, late house surgeon to the Birmingham and Midland Eye Hospital, has already taken up his duties in Egypt, while Mr. Macdonald, late house surgeon to the Royal Westminster Ophthalmic Hospital, will join the service at the end of the present month. The Aubanel Prize of 650 francs has been awarded by the Medico-Psychological Society to Drs. Raviart, Brivat de Fortunié, and

Lorthiois for their *mémoire* on "The diagnostic value of the ocular signs in the different periods in general paralysis."

* * * *

Optician's Joke.

ASIDE from the serious aspect of the opticians' question, the following pleasantry perpetrated by a City firm of opticians will bear quoting. It appears that during the early hours a thief broke into the premises of the firm in question and abstracted fifteen pairs of gold spectacles. Somewhat later in the day, the following notice was posted on the premises by the enterprising manager :—"If the spectacles the gentleman borrowed at 3 a.m. to-day are not suitable, we shall be delighted to test his sight and alter them free of charge."

* * * *

An Irish Scene.

THE Cork Guardian body took part in a discreditable scene the other day, when the question of a specialist to look after eye, ear, and throat cases came up for decision. The salary offered was £50 for the first, and £60 for the second, year of office, and even at those unremunerative terms two well-qualified gentlemen, Dr. J. M. Browne and Dr. D. P. Fitzgerald, were found to be willing to undertake the duties. The argument, which appears from the press accounts to have been of a very vigorous nature, centred around the specialist *v.* the non-specialist question. One contending party favoured the appointment of a specialist, and the other wanted simply a well-qualified man. An amendment to postpone the election for six months was met by the Guardians hammering the chairman's desk with their fists, although eventually, amid much noise, abuse, and clangour it was carried.

* * * *

Copyright in Scientific Communications.

EVERYBODY is familiar with the "warning notice" that adorns the circular sent annually to each member of the section of ophthalmology of the British Medical Association. It runs as follows :—"Papers read are the property of the British Medical Association, and cannot be published elsewhere than in *The British Medical Journal* without special permission." In view of the meeting this year of the Association in Canada, the *Montreal Medical Journal* in a recent issue raised the interesting question whether this somewhat arbitrary regulation can be enforced. As that journal remarks, it is excellent journalism to endeavour to secure as large a body of material for exclusive publication at No. 2, Agar Street, London, as possible, but it enters a plea for

allowing the reader of a paper to choose for himself the medium of publication. The Montreal journal ingenuously suggests that the required permission is to be sought from the reader of the paper, and announces its intention of following that course in default of more precise information. As a matter of fact, the notice is a mere piece of journalistic bluff, and could not for an instant be enforced. Doubtless, however, it serves the purpose of its framers!

* * * *

**The Post Office
and the Blind.**

HAVING regard to the bulk occupied by the literature for blind persons printed in Braille and other type, the Postmaster-General has recently promulgated a tariff of special charges to cover that class of material. For the purpose of preventing abuse, a special label has been issued by the British and Foreign Blind Association, Great Portland Street, London, and all packages intended for transmission in the United Kingdom under the reduced tariff should bear this tally. The proposal, although it will command general sympathy, is not economically sound. Indeed, it is calculated to make Adam Smith turn in his grave.

* * * *

**Dangers of medical
practice.**

SOME months ago we commented upon a case brought by an alien, known by the various names of "Goldenfeld," "Schleifestein," and "Collins," against Mr. R. Marcus Gunn for damages on account of alleged negligence in operations performed upon his eyes. The plaintiff was upon that occasion non-suited, and Mr. Gunn declined to ask for costs. This grateful patient made another appearance on August 22nd last in the City of London Court for the purpose of attempting to recover damages for "negligence at operation." Judge Lumley Smith, K.C., said he had no power to try the action again, which, as counsel maintained, was *res judicata*. The case was accordingly struck from the list with costs against the plaintiff. It is simply wicked that the man should be allowed to bring vexatious actions in this way. We tender our sincere sympathy to Mr. Gunn.

* * * *

**The Optician
Question.**

THERE is at present a lull in the parliamentary storm raised by the various sections of the opticians. We warn our readers, however, that it will not last for long. An attempt is now being made by the General Board of Opticians to bring into line the conflicting interests of the Spectacle Makers' Company

and the British Optical Association, and it cannot be doubted that eventually the ill-omened Bill introduced into the House of Lords on April 5th last will be replaced by a stronger Bill, backed by all sections of the optical industry. It is clear that fresh steps will have to be taken by the medical profession to meet the altered situation. Dr. Freeland Fergus, of Glasgow, has a suggestive communication which bears on the subject in the September issue of our contemporary the *Ophthalmic Review*. He protests against any person being permitted to practise a branch of medicine upon what he does not hesitate to term a "bogus diploma." On the other hand, he admits, as we all must do, that the legislature is scarcely likely to pass an Act the effect of which would be to prevent any man from selling a pair of spectacles. "The danger of a wrong pair of spectacles being prescribed," he says, "is not one which is likely to appeal to Members of Parliament as requiring legal interference." Dr. Fergus then proceeds to advocate the provision of a medical diploma or degree conferring upon its holder a qualification in ophthalmic medicine and surgery. In other words, there should be, in the writer's opinion, a special diploma and register for fully trained and certificated ophthalmic surgeons. Apparently, Dr. Fergus would allow specialisation to begin at the very outset of a student's career, since he advocates a difference even in the preliminary examination, which should include the elements of the calculus and plane trigonometry. Of course, he does not suggest that any medical practitioner should be precluded from practising ophthalmology, but merely that a special qualification should be instituted, and that all who have passed the examination should be entitled to have their names placed upon a separate register.

While in sympathy with Dr. Fergus's proposal, we would go even farther, and following the example of State and of Tropical and of Psychological Medicine, institute a special examination in ophthalmology and refraction, open to all registered practitioners, who were able to produce evidence of having attended a post-graduate course of ophthalmology. Such a qualification, it seems to us, would have several points in its favour. It would raise the status of ophthalmology; would modify the present absurd and out-of-date surgical restrictions that hedge about so many of the hospital eye appointments; would stimulate a feeling of loyalty among members of the medical profession; and, last but not least, would be a most effectual barrier to the pretensions and encroachments of the sight-testing optician.

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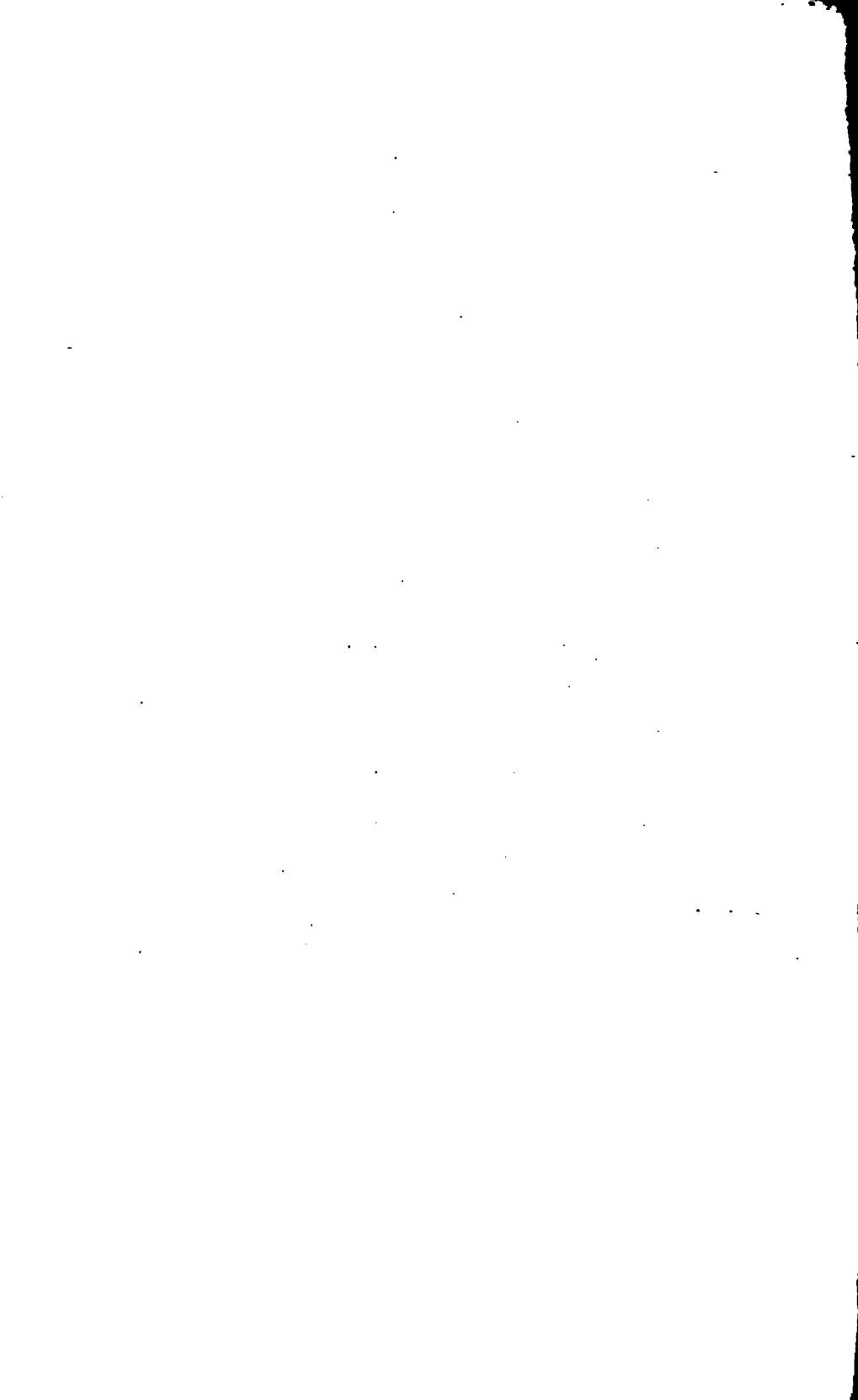
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ORIGINAL COMMUNICATION.

INTRAOCULAR VASCULAR DISEASE.*

BY

GEORGE COATS, M.D., F.R.C.S.,

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In dealing with the subject of intraocular vascular disease it is desirable to regard it from a larger point of view than that of the pure ophthalmic specialist. Its effects on the eye itself are indeed of the greatest interest and importance, and in the eye vascular changes are displayed with a minuteness nowhere else obtainable in the living body. But in most instances our first

* Address delivered in the Post-Graduate Course of Ophthalmology at Oxford,
July 24th, 1906.

thought on finding retinal vascular disease is not "what is the prognosis with regard to sight," but "how far is the disease to be regarded as an indicator of the condition of other vessels in the body, and how far, therefore, does it affect the prognosis with regard to the life of the patient?"

No one will deny the importance of the information so obtained. The method of examination is infinitely more delicate than palpation of the radial or temporal arteries through the skin. By means of it we are often led to an unfavourable view of the condition of the cerebral vessels, or to a diagnosis of grave constitutional disorders, such as nephritis or diabetes. Its importance has been shown by R. Marcus Gunn (*Trans. Ophthal. Soc.*, Vol. XVIII, p. 356), who reported fourteen cases of intraocular vascular disease, in which cerebral haemorrhage subsequently occurred.

Yet when this has been admitted, there are limitations to be set and reservations to be made. The ocular circulation is not to be looked upon as a mere expansion of the cerebral, in the same sense as the nerve is an expansion of the brain. It is far from responding passively to changes in the intracranial circulation, and by no means always shares in the diseases of the latter. Nothing emerges more clearly from pathological research than the fact that angiосlerotic processes are almost always exceedingly irregular in their distribution. It is easy to prove that some patients show extensive intraocular angiосlerosis without the least palpable rigidity of their radial or temporal arteries, and the reverse is also true. Moreover, the radial or temporal arteries are admitted to be but imperfect indicators of the state of the cerebral vessels. These considerations show that one region may be affected while other areas are normal. But, in addition, within the same area, vessels of different sizes may be differently affected, syphilis for instance being a morbid process which falls especially on the smaller arterioles. Not only so, but in the examination of serial sections from small vessels one frequently finds the most notable differences within a very short space. In the central artery of the retina, for instance, the region of the lamina cribrosa is a favourite seat of endarteritic processes, and we may find the artery almost obliterated by a knob-like nodule in this situation, yet practically normal a millimetre or two up the nerve. Similarly, the central artery may be much diseased, and the retinal vessels almost free, and *vice versa*. The frequent irregularity of distribution of vascular disease in the retinal vessels as seen with the ophthalmoscope is also well known.

It is evident, therefore, that disease of the retinal vessels is not positive proof of disease in any other vascular area, although

it furnishes a presumption in favour of its existence ; a presumption which will be strengthened if any general cause of angiosclerosis can be found, such as syphilis, diabetes, or nephritis. On the other hand, the absence of retinal changes is no positive proof that other vascular areas are intact. This follows from what has already been said as to the irregularity of distribution of endarteritis in general. It has also been proved that fairly extensive disease may exist in the retinal vessels without ophthalmoscopic evidence. Thus, Hertel (*Arch. für Ophth.*, Bd. LII, 2 Heft, p. 191) examined microscopically the eyes of a large number of old people in whom no abnormality had been visible with the ophthalmoscope ; he found angiosclerotic changes in a considerable number of them. Some observations of my own confirm this.

These facts detract in some degree from the value of the ophthalmoscopic evidence of general vascular disease ; yet it remains the best indicator of the state of the vessels generally which we possess. Positive evidence is of more value than negative ; when retinal vascular disease is present the prognosis is always grave, when absent it is not necessarily good. In all cases the evidence furnished by rigidity of the peripheral vessels, by high arterial tension, by hypertrophy of the heart, and by accentuation of the cardiac sounds, must have due weight.

With regard to the nature of the pathological processes at work it is to be remarked that if all changes which involve thickening of the vessel wall and increased rigidity are included in the term angiosclerosis, it is not entirely a pathological process. It is in part a senile change which we should expect to find in the vessels of any old person, in part a definite response to a pathological stimulus, and these two components are not always clearly separable. Given the stimulus, however, it may appear far in advance of the usual age, as, for instance, in juvenile nephritis.

Before entering into the histological details of the process it is desirable to mention a few points in the normal microscopical anatomy of the central vessels.

From its entrance into the nerve to the lamina cribrosa the central artery has the structure of an ordinary small arterial twig. The adventitia and media call for no special remark. The intima consists in reality of three layers : the elastic membrane or membrane of Henle, a thin layer of subendothelial tissue (which is very little evident in the normal eye, especially in young subjects), and the endothelium. When the lamina cribrosa is reached, various changes occur. The lumen becomes narrower, a fact which has a double importance, since it must cause eddies and so favour the occurrence of endarteritis, and since it will tend to arrest bodies circulating in the blood which are

small enough to enter the central artery at all. Both of these considerations are clearly borne out by actual facts.

But, in addition, there are structural alterations. The surrounding connective tissue becomes much denser, the elastic membrane is replaced by a feltwork of fine fibres which still separates the endothelium from the outer layers, and the subendothelial tissue seems to disappear. A retinal artery, therefore, consists of an endothelial lining and a connective tissue wall in which elastic and muscular fibres are present. Both the elastic and muscular fibres disappear in the smallest peripheral twigs.

The central vein has a more delicate wall. It consists almost entirely of connective tissue with curly elastic fibres. Muscle cells are very scanty. There is some condensation of the elastic tissue towards the lumen, but no true elastic *membrane*; there seems to be no subendothelial tissue, so that the endothelium rests directly on the connective tissue of the wall. The vein also undergoes structural modification in passing through the lamina cribrosa. The elastic tissue of the wall mingles with the elastic tissue of which the lamina is largely composed, and within the eye there are no elastic elements in its walls. This fact is of much importance, since by special methods of staining for elastic tissue a retinal artery can be distinguished from a vein, a distinction which is by no means easy when they are pathologically altered. A retinal vein, therefore, consists of an endothelial lining and a connective tissue wall. There are no muscular fibres.

It may be remarked in passing that although I speak constantly of "elastic fibres" and "elastic membranes," there is no real proof that these structures possess elasticity. The proof is rather in the other direction, for if they were truly elastic they would adapt themselves to partial collapse of the arterial wall instead of being thrown into crenated and curly forms. Moreover, their proliferation seems always to be associated with *loss* of elasticity, as in the case of arteriosclerosis and of various senile changes in the skin and elsewhere.

Any or all of the structures mentioned above may be diseased in angiosclerosis, and according as the process falls with especial severity on one or the other, different microscopical, and presumably different clinical appearances will be produced. Moreover, the differences in structure between the retinal and central vessels produce differences in the microscopical lesions which are found in them.

In the central artery the intima is usually chiefly affected. Changes in the media are not very notable, and are difficult to diagnose, because the coat varies so much in thickness according

to the distension or collapse of the vessel. The adventitia hardly exists as a layer separable from the surrounding connective tissue. In the majority of cases all the lesions are inside the elastic membrane. The membrane itself is often thickened and may be split into two or more layers. Inside it there are layers of cells among which small, curly, elastic fibres are made evident by special staining (FIG. 1). These are often of some



FIG. 1.

Endarteritis of the central artery of the retina. Weigert's elastic tissue stain. Inside the crenated elastic membrane of Heule there are several layers of new-formed elastic fibres. Among these there are many small cells which are not well brought out by this method of staining. Note the absence of a true elastic membrane in the vein.

size, so that they form, as it were, small elastic membranes within the true membrane, but they never reach all the way round. The cells among them frequently swell enormously, and may degenerate, leaving only a granular detritus. Sometimes they contain more than one nucleus, and have the appearance of small giant cells. The lumen is usually lined by a single layer of well-formed endothelial cells, even when the layers beneath are extremely degenerate, and this fact strongly suggests that the essential lesion is not a proliferation of the endothelium, as is often stated, but of the subendothelial layers.

Further evidence in the same direction is furnished by a

consideration of the changes in the retinal vessels. In them disease of the intima takes the form of cellular proliferation, but among the proliferated cells elastic fibres are *not* found. It would seem probable, therefore, that the endothelium of arteries is incapable of forming elastic fibres, but that the subendothelial tissue, which probably originally laid down the proper elastic membrane, is capable, under pathological stimulation, of laying down new deposits of the same substance. This subendothelial tissue being absent in the retinal vessels, no elastic membrane is normally laid down, and under pathological stimulation no new fibres are formed in the intima.

In the retina, however, the intima is not the only layer which shows lesions. The connective tissue wall is often greatly thickened, constituting a condition which may be termed "fibrosis." Where retrogressive changes ensue and nuclear staining is lost, this form results in hyalin degeneration. Both of these thickenings narrow the lumen, but in a characteristically different manner. When the intima is affected the narrowing is almost always eccentric, the lumen being displaced to one side; when the connective tissue wall thickens it encroaches more or less concentrically on the lumen.

The changes mentioned occur both in the arteries and in the veins, and although one or the other type usually predominates, they are by no means mutually exclusive.

These pathological details are, however, of minor interest if they have no clinical bearing. If we cannot tell which form of vascular disease we are looking at with the ophthalmoscope, they do not add much to our practical knowledge. The subject is one which requires much care in investigation. Ideally, an accurate sketch of the fundus before enucleation, extreme care in orientation, and serial sections are desirable. The ophthalmoscopic signs of vascular disease, apart from actual haemorrhages and degenerative spots may be divided into (1) narrowing of the blood current without very evident changes in the wall, or perhaps with "silver wire" arteries and banking of the veins, and (2) white lines along the vessels. It would seem probable *a priori* that such white lines would be due to thickening of the connective tissue coat, and the simple narrowing of the lumen to endothelial proliferation. For the latter supposition at least there is actual proof in a case reported by Raehlmann, in which an artery became very much narrowed close to and on the disc. When the eye was subsequently enucleated, the same vessel proved to be narrowed by endothelial proliferation. The cases of Flemming (*Trans. Oph. Soc.*, vol. xxiv, p. 126), and Buzzard (*Gower's Medical Ophthalmoscopy*, 4th ed., p. 200) may also be mentioned, in which both the ophthalmoscopic appearance of

the fundus and the microscopical appearance of the vessels are given. But it must be confessed that our knowledge stands in need of extension by more cases of the same kind, worked out vessel by vessel with careful reference to the clinical appearances.

The distinction is not without importance, for it seems probable that the two conditions are due to different causes. Disease of the intima is most probably a response to a circulating toxin which would naturally chiefly affect the internal coat ; thickening of the connective tissue wall is probably a strengthening of the wall to compensate for raised blood pressure. The difference was well illustrated in a case of thrombosis of the central vein in a patient the subject of nephritis. The retinal vessels showed fibrosis as well as proliferation of the intima. In the central vein above the probable site of obstruction, proliferation of the intima alone was present. The only probable explanation here was, that the proliferation of the intima was due to a circulating toxin and was therefore present both above and below the obstruction, whereas the fibrosis was due to raised blood pressure, and was therefore only present on the retinal side of the obstruction.

It will be noted that all the changes mentioned tend to strengthen the vessel wall rather than to weaken it. Why, then, does haemorrhage result ? It would seem probable that it does not occur at the actual seat of disease ; but the changes cause obstruction to the circulation, damming back of the blood, and rupture at some spot where the wall is unthickened, or in the capillaries where the wall is incapable of much thickening. The result is a retinal haemorrhage which, if small, will be confined to the inner layers, since these are the layers which contain the vessels. If it is in the nerve fibre layer, it will tend to spread longitudinally among the fibres, giving the well-known flame-shaped or streaky appearance. Small, round, retinal haemorrhages are more probably in the inner reticular or nuclear layers. But the haemorrhage may easily break through into the subretinal space or into the vitreous. The occurrence of large haemorrhages between the retina and hyaloid membrane is very doubtful. They seem to be really in the superficial layers of the retina, in spite of hypothetical anatomical considerations to the contrary. Fisher's statement to that effect (*Royal London Ophthal. Hospital Reports*, vol. xiv, p. 291) has recently been confirmed in all points by the report of another case examined microscopically by v. Benedek (*Arch. f. Ophth.*, Bd. LXIII, 3 Heft, p. 418).

In the case of vitreous haemorrhage, the blood is usually absorbed if not very abundant, and if no further additions are made to it. But in some cases the interesting condition known

as "retinitis proliferans" results. The essential lesion here is undoubtedly an organisation of the blood, proceeding from the mesoblastic tissue round the retinal vessels, especially those on the papilla, which have the greatest amount of connective tissue around them (Parsons).

It is interesting to inquire why this should occur in some cases of vitreous haemorrhage and not in others. Flemming (*Trans. Oph. Soc.*, Vol. xviii, p. 154) has put forward the suggestion that the mere presence of blood is insufficient, but that if the stimulus of some circulating toxin is added, such as syphilis, uræmia, etc., organisation will occur. The hypothesis has much to recommend it, but it should also be remembered that the circulating toxin is comparatively frequent in these cases of vitreous haemorrhage, whereas retinitis proliferans is rare. On the other hand, cases of retinitis proliferans occur in which the circulating toxin cannot be proved. It may be that this is because it escapes our methods of investigation. Perhaps the occurrence of vascular disease and vitreous haemorrhage may itself be taken as proof of a toxic condition of the blood. I have had the opportunity of examining pathologically five cases of this kind. In one there was a history of syphilis, and a thrombosis of the central vein with vitreous haemorrhage had occurred immediately after an attack of influenza. In another there was albuminuria. In a third there was a history of septic poisoning; I have no clinical notes of the fourth. In a fifth there was no record of any illness and the urine was normal. I could add a clinical case of the same kind. A similar form of organization not infrequently occurs in connection with haemorrhages in the anterior chamber. It leads to the formation of a fibrous membrane on the front of the iris, which, by its subsequent contraction, is one of the commonest causes of ectropion uveæ.

So far, I have dealt with the general subject of vascular disease, but there are two manifestations of it which have received, and indeed merit, the status of separate diseases. I refer to thrombosis of the central vein and so-called embolism of the central artery.

Through the kindness of various gentlemen I have had the opportunity of microscopically examining 16 cases of the former affection, but I must here confine myself to the broadest outlines.* It is not a very rare disease, not nearly so rare as obstruction of the artery. The clinical features are well known. The enormously distended and tortuous veins and the suffusion of the retina in every part with large and small haemorrhages, form a very sharply-defined and unmistakable clinical picture. In

*For details and illustrations see *Royal London Oph. Hosp. Reports*, Vol. xvi, pp. 62 and 516.

most instances very little improvement in vision is to be hoped for. In a very large number, probably the majority, of cases a peculiarly intractable form of glaucoma results, which usually leads, in spite of treatment, to the loss of the eye.

There is therefore little or no subdivision, or only one of degree, to be made from the point of view of the clinical course of the disease, but I wish to point out that there is some reason to divide the individuals affected into two groups. In one the patient is probably old—above 50 years—and shows marked signs of general angiosclerosis in the state of his peripheral arteries and heart; albuminura is frequently, but not always, present. In the other group the patient is comparatively young—probably between 20 and 30 years; there are no signs of arteriosclerosis in the ~~other~~ fundus or elsewhere in the body, and there is usually no albuminuria. Frequently there is a history of the occurrence of dimness of vision during an illness, very often an attack of influenza or a severe feverish cold. There may be a history of syphilis, septic poisoning, rheumatism, or gout. It is of course impossible to draw a perfectly hard and fast line between the two groups, but cases frequently occur which belong typically to the one or to the other. It does not appear that the prognosis with regard to the eye itself differs, but it is evident that the prognosis with regard to life will be worse in the old and angiosclerotic subjects.

I may remark in passing that thrombosis of the central vein *per se* seems to afford very little information with regard to the prognosis for life. I know of patients who have been perfectly well from 2 to 5 years after its occurrence. It is true that some other patients have died, but in these instances the prognosis never depended on the thrombosis, but on evidence of nephritis and advanced vascular disease elsewhere, of which the thrombosis was merely a symptom.

To return, however, to the two groups which I have mentioned, there is evidence that the pathological changes underlying them are different. In the first the lesions are essentially those of angiosclerosis, while inflammatory changes are conspicuously absent. In addition to the disease of the veins, the central and retinal arteries usually show advanced endarteritis. It is probable that this endarteritis is the primary lesion. In consequence of it the circulation is greatly slowed, and thrombosis is favoured in the veins. It may be aided also by similar primary disease of the veins. In the second group, on the other hand, inflammatory changes predominate. Frequently the whole course of the central and retinal veins is picked out, and similar changes of less degree may be found along the arteries. The lesion is a round cell infiltration, and the thickening of the connective tissue

wall and proliferation of the intima so prominent in the other group are absent. These facts speak strongly for a circulating toxin, and further confirmation of this supposition is found in the fact that it is this group which especially furnishes the cases of retinitis proliferans. As already mentioned, the toxin of influenza is especially active. The case of the central vein is by no means isolated in this respect ; thrombosis of veins following influenza is a sufficiently well known fact in general medicine. This group probably furnishes most of the cases which are in good health years afterwards ; the thrombosis was merely an accident in the course of a disease from which a complete recovery has been made.

A thrombus having occurred from whatever cause, its effects on the intraocular circulation are easily understood. Since there are no collateral vessels capable of carrying on a sufficient circulation, the blood is dammed back, the retinal veins became enormously distended and tortuous, and haemorrhages take place probably both by rupture and diapedesis from the smallest venules and from the capillaries.

A much more difficult question relates to the occurrence of glaucoma in these cases. I am unable to give exact figures as to the proportion of cases in which it is observed, but there can be no doubt as to its frequency, a frequency far greater than can be accounted for by coincidence. The mere fact that it occurred in all 16 of the cases examined by me, sufficiently shows this. Moreover, in not one of those did glaucoma occur in the other eye. The type also differs in some respects from ordinary glaucoma.

It has been suggested that the glaucoma is not the result of the thrombosis, but that both are due to the common cause, angiosclerosis. This, however, does not account for the eye affected with thrombosis being always attacked, since angiosclerosis will presumably be approximately equal in the two eyes of the same person. Moreover, it does not take account of those cases which occur in young persons in whom angiosclerosis is undoubtedly absent. The earliest age recorded is eight. In some cases the glaucoma has followed upon the use of a mydriatic, and in some iritis has been present. Both of these are, however, quite exceptional factors. We must conclude, therefore, that in some way the glaucoma is the result of the thrombosis with its consequent haemorrhagic retinitis.

What the connection is, is a difficult question ; it is easier to say what it is not. In the first place, it is not due to haemorrhage into the vitreous. This would account for it very well by raising the intravitreous pressure, and driving forward the lens and iris. But it is certainly not present in the majority of cases, and,

moreover, it may occur without producing glaucoma. A certain proportion of the intraocular lymph gains an exit from the eye along the perivascular lymph sheaths of the central vessels. The block on the vein might conceivably cause damming back of this lymph, but as it constitutes only a minute fraction of the drainage of the eye, it is difficult to see how it could send the tension up if the other drainage channels were quite clear.

The following explanation has, perhaps, the fewest objections. In consequence of the severe congestion and haemorrhagic suffusion of the retina, the character of the lymph circulating in

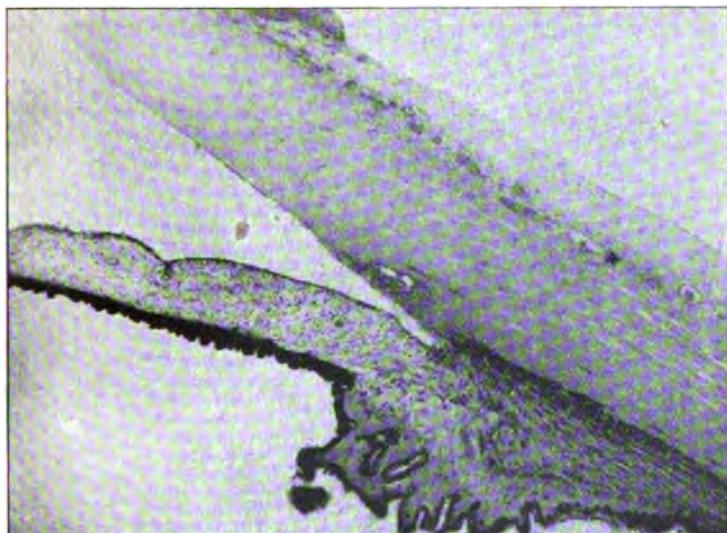


FIG. 2.

The angle of the anterior chamber on the nasal side, from a case of glaucoma following upon thrombosis of the central vein. It is almost free. An adhesion is just commencing to form between the root of the iris and the posterior surface of the cornea in the usual position, a short distance anterior to the actual angle.

the vitreous is altered. It becomes more abundant and also more colloidal, and is therefore less easily drained at the angle of the anterior chamber. The rise of tension is, therefore, in some sense analogous to that which occurs in serous iritis. A certain confirmation of this view seems to be furnished by the fact that in these cases the anterior chamber is not shallow as in ordinary primary glaucoma, but deep, or, at least, of normal depth. The confirmation is, however, more apparent than real, for the depth of the anterior chamber is never associated with a free angle. It is, however, true that the amount of occlusion at

the angle corresponds more or less to the duration of the glaucoma, and that in very early cases it may be occluded only on one side. A very curious point is, that it is practically always the temporal side which is first occluded, and until later stages, it is usually more widely occluded (FIGS 2 AND 3). There must be some explanation of this fact, but I am quite unable to offer any. It is not due to any normal difference in the breadth of the ciliary body or height of the ciliary processes on the two sides, as I have proved by taking the average of a series of sections from a normal globe. Moreover, I have not been able to show that

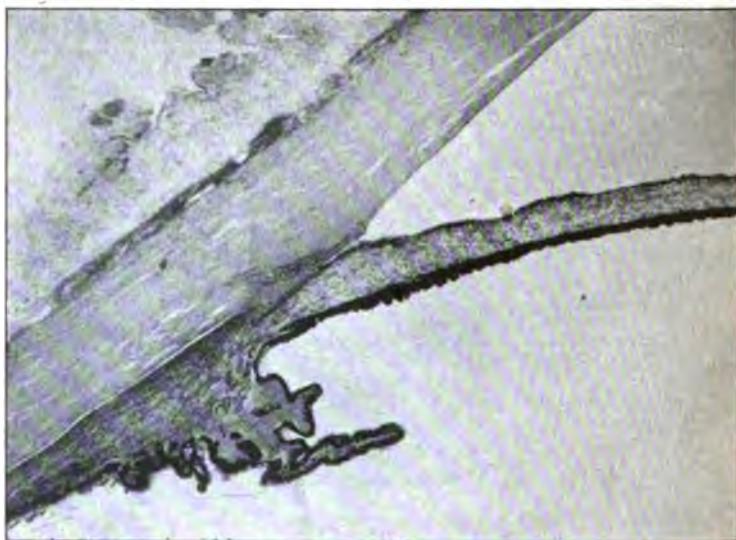


FIG. 3.

The angle of the anterior chamber on the temporal side, from the same case (same section). There is a wide adhesion between the root of the iris and the posterior surface of the cornea.

these eyes belonged to the type structurally predisposed to glaucoma. In particular, the diameter of the lens came out rather below than above the average.

The theory of altered lymph circulation, therefore, seems to be, on the whole, the most probable. Yet there are objections to it also. An increased quantity of lymph thrown into the vitreous should make the anterior chamber shallow, but in reality in most cases it is of normal depth. On the other hand, if it is chiefly a question of the quality of the lymph to be drained off through the normal angle, it is difficult to

see why the periphery of the iris becomes adherent to the back of the cornea, for actual inflammatory changes are usually absent.

One practical lesson is to be drawn from the liability of eyes with thrombosis to be attacked by glaucoma. When a diagnosis of thrombosis has been made no mydriatic should ever be employed subsequently. I know of four cases in which glaucoma apparently followed directly upon the use of mydriatics. In one instance homatropin was used for purposes of diagnosis, and glaucoma occurred while the patient was waiting for ophthalmoscopic examination.

A few details as to the history of the thrombus itself may be of interest. For reasons which are only partially understood, it is always deposited within, or a short distance behind, the lamina cribrosa. It is curious that exactly the same spot is the seat of election for pathological processes in the artery. Among the reasons which have been given may be mentioned the narrowing of the vessels as they pass through the lamina, the denser connective tissue around them, the greater rigidity of the porus opticus as compared with the dural sheath further back, and its smaller adaptability owing to the cessation of the vaginal space. In addition, there is probably a certain drag upon the point of junction of the nerve with the globe during ocular movements (Haab). In the case of the artery, also, the blood current is coming to a point of bifurcation, and is meeting the intraocular pressure.

When laid down, the thrombus does not long remain unaltered. The blood corpuscles speedily break down and cellular invasion occurs. At first, these cells are derived from the endothelium, later it is probable that the connective tissue of the wall bears a part. The result is organisation with its usual consequence—cicatricial contraction. For a considerable time after the occurrence of thrombosis the lumen will be found occluded by a cellular plug. Later, this shrinks almost to nothing and the vein may wholly disappear for a space. This, however, is not always what happens. In some instances canalisation occurs, and a very considerable current may be restored. In any case the vein never remains occluded for a very long distance—seldom more than a millimetre or so. Venous branches from the surrounding trabeculae soon plunge into the occluding mass and restore a lumen. If the collateral branch is large, the vein becomes normal almost at once. More usually only small twigs enter, and the vein remains thick walled and with a small lumen for some distance.

It will be seen, therefore, that it is a mistake to regard the vein as a pure end vein—a vein for the obstruction of which

there is no compensatory mechanism. In addition to the canalisation and collateral circulation which occur in the nerve itself, a small collateral circulation is formed by enlargement of the small twigs normally connecting the central vessels on the papilla with the choroidal vessels. It is the enlargement of this anastomosis which gives the little tortuous nets so often seen round the edge of the papilla in old thrombosis cases. Unfortunately these collateral circulations are set up too late and are too scanty, in most instances, to prevent profuse haemorrhages and destruction of the retina, so that clinically the central vein remains an end vein. But I have once seen a typical case in which the haemorrhages all cleared up and a final vision of 6/6 resulted, showing that in young and otherwise healthy persons the collateral circulation may be sufficient to save the sight.

In certain rare instances the obstruction of the vein seems to be produced, not by thrombosis, but by primary disease of the vein wall, a process analogous to endarteritis in the artery. In this case a minute blood-filled lumen may be found surrounded by laminated layers of proliferated endothelium. This probably accounts for some cases in which loss of vision is gradual, not sudden as usual.

Obstruction of the central artery is a much rarer disease clinically than thrombosis of the vein, and the material is seldom obtained for pathological examination, because it does not usually lead to loss of the eye. I use the term "obstruction" in place of the commoner one "embolism," because there can be no doubt that many, perhaps most, of these cases are not due to an embolus, but to endarteritis or thrombosis or—most commonly of all—to a combination of these two. This was shown long ago by Loring, Nettleship, and Priestley Smith, who pointed out that many cases have prodromal obscurations lasting even for years before the final loss of sight. It is obviously difficult to believe that large numbers of emboli could chance to enter the central artery, and that if they did, the blindness would be temporary, not permanent. Priestley Smith reported a case in which the obscurations were always associated with faintings due to painful vaginal douchings for ovarian disease. One eye had already become permanently blind, but on discontinuing the douchings and removing the offending ovaries, the obscurations ceased permanently. In this case there can be no doubt that Priestley Smith's explanation is the correct one: the obscurations were due to defective cerebral and ocular circulation, and the permanent blindness to thrombosis of the central artery.

Moreover, it has been shown that in between 60 % and 70 % of cases no cardiac disease or other source of embolism can be proved. In addition, embolism is an improbable, and

thombosis a probable explanation of cases in which both eyes become affected simultaneously or nearly so.

But the matter does not rest upon conjecture. Both endarteritis and thrombosis have been proved pathologically; indeed, some authors go so far as to state that all cases are of this nature, and that true embolism has never been proved to occur. This is certainly to err on the other side. There are, for instance, cases in which obstruction of the central artery has occurred simultaneously with embolism of cerebral vessels of the same side. These can only be explained with any degree of probability by the scattering of the pieces of an embolus which has entered the internal carotid artery. Some of the cases microscopically examined seem to me to have been undoubtedly true emboli. I will show some sections illustrating this.* I owe the material to the kindness of Mr. R. W. Doyne. They show a calcareous mass distending the central artery within the lamina cribrosa. Although blindness had been present for over three years, there is not the slightest trace of organisation or shrinkage. The mass has a vitreous fracture, and exhibits no structure. Except at this one spot both the artery and vein were greatly collapsed. The woman had no prodromal obscurations, and had double mitral disease and aortic regurgitation. In this case there can be no reasonable doubt that the mass shown is a true embolus, probably a piece of calcareous cardiac valve.

The other case which I show forms an excellent contrast to the last. I owe the material to Mr. A. Poulett Wells. Obstruction of the superior temporal artery, with beading of the blood column, etc., occurred in the right eye of a gentleman who suffered from diabetes. A corresponding sector was lost from the field of vision, but the central stem was not blocked. Within the lamina cribrosa, the outer coats of the artery are intact, but a nodule of endarteritis springs into, and almost occludes, the lumen. It is composed of the pale blown out cells of which I spoke when dealing with the subject of endarteritis in general. In its deepest layers there are calcareous deposits, showing that it is of old standing. The lumen is reduced to a minute slit at one side. Almost all the retinal vessels showed advanced disease of the same type, but only the superior temporal was completely blocked. It is easy to understand what happened in this case. The nodule in the central artery was the real cause of the branch obstruction. The current must have been greatly diminished and slowed, so that it finally came to a standstill in the superior temporal artery, which was, no doubt, itself much diseased. It will be evident how readily a slight fall in the general blood pressure might have

* See *Royal London Ophth. Hosp. Reports*, Vol. XVI, p. 262.

caused cessation of flow in the central artery. If the pressure had soon risen again the flow would have been re-established, and a typical prodromal obscuration would have been produced. If, on the other hand, it had remained low, thrombosis would have occurred, and total permanent blindness, with the typical picture of "embolism" of the central artery, would have resulted.

In speaking of thrombosis of the central vein, I showed that a scanty and insufficient collateral circulation occurs. There can be little doubt that the same thing happens in the case of the artery. After obstruction of the artery the retinal vessels are only empty for a short time. Although they remain small, and although function is not usually restored, they always refill, and this may take place much sooner than can be accounted for by the occurrence of canalisation in the obstruction. Moreover, in some rare cases little capillary nets are formed around the papilla, similar to those more commonly seen in thrombosis of the vein. These represent collateral enlargements of the fine anastomoses normally present in this situation. Small haemorrhages are sometimes found in the same situation, and probably represent rupture of minute vessels under the strain of collateral enlargement. But the best evidence is afforded by cases in which the nerve is divided in the removal of retrobulbar tumours, with preservation of the globe. Even in these cases the vessels refill, and as the vein is also divided the refilling cannot be due to recurrent flow. In one instance, reported by Schliodtmann, the retinal vessels were found to be of normal size on the evening of operation. Examination of the tumour removed showed that the central vessels were already occluded by the growth. The collateral circulation must therefore have been fully prepared before the operation. It will be readily understood that the collateral circulation is less complete in cases of obstruction as ordinarily observed, because the block is usually sudden, and in many instances the vessels on which the collateral circulation would depend are themselves diseased.

In the foregoing I have repeatedly mentioned the subject of collateral circulation on occlusion of the central vessels. I should like, in conclusion, to make a few general remarks on the subject of the anastomoses about the nerve head and their clinical significance. These anastomoses are of two kinds. In the scleral part of the porus opticus there is a circle of arteries which communicates by small branches with twigs from the central artery. This is the circulus of Zinn and has no corresponding veins. It probably has influence in some cases of arterial obstruction where the obstruction is fairly far back, but it will have no influence on the veins.

Further forward, at the level of the choroid, there are other

minute anastomoses which *have* corresponding veins. These run from the choroid in three directions: (1) forwards, to aid in vascularising the papilla, (2) straight inwards to the region of the lamina, and (3) backwards up the pial sheath. In each case they anastomose with minute branches from the central vessels. An abnormally large branch of the first set is a cilio-retinal artery or vein, and pathologically the anastomosis may enlarge in cases of venous obstruction to form little nets around the margin of the disc. An abnormally large member of the second constitutes the rare condition known as an optico-ciliary vein; a large vessel in the substance of the papilla running out from a central vessel and disappearing into the choroid at the edge of the disc. This is probably usually a congenital abnormality, but may undoubtedly develop during a papillitis and disappear afterwards. Enlargement of the third set is probably the cause of chorio-vaginal or posterior vortex veins—large venous trunks which run from the choroid to the edge of the disc and disappear there.* They usually occur in highly myopic eyes, and are probably due to stretching and atrophy of the choroid, which makes the passage of blood from the posterior pole to the ordinary venous channels—the vortex veins—more difficult. Hence, the small normal anastomoses between the choroidal and pial sheath vessels become enlarged. It is probable also that a similar enlargement may occur as a congenital peculiarity, and this may account for cases which occur in emmetropic and hypermetropic eyes.

In these remarks I have only sketched the features of a single division of the subject of intraocular vascular disease, in which I have myself worked. I have been obliged to omit all reference to choroidal vascular disease. Vascular changes in the anterior segment of the eye must also be of much importance and may some day throw light on the subject of glaucoma; but comparatively little is known of their effects, and this, with the limited time at my disposal, must constitute my excuse for not speaking of them further.

* For details see *Ophthalmic Review*, April, 1906, p. 99.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

A NOTE ON THE PREPARATION OF YELLOW MERCURIC OXIDE OINTMENT.

BY

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Unguentum hydrargyri oxidi flavi, commonly known as Pagenstecher's ointment, is so largely used in ophthalmic treatment that the various methods for its preparation seemed worthy of careful investigation. Experiments have been devised :—(i) with a view to making the yellow oxide of mercury in the form of an impalpable powder free from hard particles and grit, and (ii) the determination of the best ointment basis for suspending the mercurial.

(i) **Preparation of Yellow Mercuric Oxide.**—The yellow mercuric oxide, as directed in the British Pharmacopœia, is prepared by interaction of mercuric chloride and sodium hydroxide. (Dilute solutions are essential, and the soda solution is to be added to that of the mercuric chloride.)

The precipitation of a boiling solution of mercuric chloride with a dilute solution of potassium carbonate has been recommended. The precipitated yellow mercuric oxide is washed by decantation until the washings do not react with either silver nitrate or phenolphthalein, indicating respectively freedom from the resulting potassium chloride and excess of alkali.

By proceeding on either of the above lines an impalpable powder is produced. The second method is, in our experience, not so satisfactory as the first.

(ii) **The Ointment Basis.**—As to the various bases for suspending the powder thus produced to make an ointment suitable for ophthalmic use, we have the following :—1. Yellow soft paraffin; 2. White soft paraffin; 3. The admixture of an organic ointment base, e.g., wool fat or castor oil, to render the ointment more readily absorbed.

Taking these in order we may say at once that we do not find anything more satisfactory than the yellow soft paraffin ordered in the British Pharmacopœia. A suggestion has been made (*Pharmaceutical Journal*, Vol. II, 1904, p 609) to boil the soft paraffin with potassium permanganate solution in order to oxidize any possible organic contamination.

Some experiments were conducted with a view to finding out to what extent paraffinum molle is contaminated with

organic matter, by boiling in this manner with a standard solution of potassium permanganate. The method is, however, inapplicable for accurate work.

In view of the elaborate process of refining which paraffinum molle undergoes to bring it up to B.P. standard, it is difficult to know exactly what the "organic matter" may be. The B.P. requires free solubility in ether, chloroform, and benzol, and tests carefully for absence of fixed oils, fats, and resin, by treating with a boiling solution of sodium hydroxide, which on acidifying should yield no precipitate or oily matter.

A simple test (which is not included in the B.P. under paraffinum molle, but nevertheless mentioned under paraffinum liquidum [*Off.*] and which is official in P.G. for paraffinum liquidum and paraffinum solidum) will point to any contamination with dust or dirt, e.g., arising from careless packing: place a small quantity of the soft paraffin in contact with a little warm strong sulphuric acid, and note any appreciable darkening in colour. In the case of paraffinum molle warming is hardly necessary. The white variety stands the test better than the other.

The white soft paraffin is somewhat erroneously objected to by certain oculists, as being possibly contaminated with acidity left over from the treatment of the yellow soft paraffin. But it should be realised that in the manufacturing the initial bleaching with acid is followed by a neutralising with alkali and a final filtration through charcoal; and that the B.P. carefully excludes the possibility of both acid and alkaline contamination, by requiring that soft paraffin, either white or yellow, shall be free from acidity or alkalinity. Considering the fact that the yellow soft paraffin is half the price of the white, there seems no reason why considerations of economy should not have weight in the selection of a suitable basis for the "yellow ointment." As to the introduction of organic bases, such as those already referred to, this seems to us in reality unnecessary, having regard to their proneness to become rancid.

The United States Pharmacopoeia adopts a very useful plan to assist in producing a smooth ointment. It gives the composition:—Yellow mercuric oxide, 1; water, 1; hydrous wool fat, 4; petrolatum, 4; and directs that the yellow mercuric oxide be triturated with the water until the mixture is perfectly smooth—the hydrous wool fat is then added in divided portions, and the petrolatum thoroughly incorporated. (A similar method is also employed for red mercuric oxide ointment, U.S.)

Pinchbeck, who has been over much of this ground (*Pharmaceutical Journal*, Vol. II, 1905, 359), proposes a basis of anhydrous wool fat 10, and spermaceti ointment (without benzoin) or white paraffin to 100.

It may be mentioned here that the use of castor oil, 5% in ointments, is suggested (see *Pharmaceutical Journal*, Vol. II., 1905, p. 553), e.g., in the case of the red mercuric oxide ointment. The red mercuric oxide is triturated in a mortar with castor oil until a perfectly smooth mixture results, the petrolatum being gradually added in portions. The ointment is covered with about an inch of water to keep the air away. A jar of ointment made in this manner remained perfectly good for a year.

Conclusion.

We recommend the yellow mercuric oxide to be freshly precipitated (this was Pagenstecher's original intention, cf. *Pharmaceutical Journal*, Vol. II., 1905, p. 359) and converted into ointment without preliminary drying. This can be effected by taking the equivalent of mercuric chloride to start with. Supposing we wish to manufacture 10 lbs. of the ointment of 10% strength. Now $214\cdot68$ parts of HgO are produced from $269\cdot18$ of HgCl therefore $\frac{269\cdot18}{214\cdot68} = 1\cdot254$ lbs. of corrosive sublimate will produce 1 lb. of yellow mercuric oxide on precipitation, as directed, with sodium hydroxide. This is carefully washed and pressed in suitable linen free from 'fluff,' and finally in this moist condition is made up to 10 lbs. with paraffinum molle. The amount of moisture in the precipitate is easily ascertained and is reducible, by pressing, to a very small amount. Weaker strengths can then be prepared from this 10% bulk, as desired, by dilution with paraffinum molle.

If kept exposed to light, yellow ointment may on long exposure turn dark on the surface. If desired, the ointment may be kept under water, or be placed into small collapsible tubes. We have examined the contents of such tubes two years after preparation, and find the same in good condition.

The ointment is usually manufactured in strengths of yellow oxide as follows :—1 25%, 2 5%, 4%, 5%, 8% and 10%.

A CASE OF CYCLITIS RELIEVED BY DIONIN.

BY

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In February, 1906, I was asked to see a lady at a distant town who was suffering from cyclitis. The medical man who had been attending her informed me that the patient had begun to complain of pain in the left eye ten days ago. He had found the iris normal as regards appearance and mobility, but there

was much circumcorneal injection and photophobia. He had also detected keratitis punctata. He had prescribed atropine in 1% solution, with hot fomentations to the eye. This treatment had not had much effect—in fact the pain was often worse after the atropine had been instilled. Salicylate of soda had been freely given. When I first saw the patient, I found the following condition :—left eyelids somewhat swollen and red, slight but distinct chemosis of the conjunctiva, well marked circumcorneal injection, pupil fully dilated. Ophthalmoscopic examination showed that the media were clear and the fundus was normal. Eye tender to the touch. T. + $\frac{1}{2}$. There was keratitis punctata, of the "mutton fat" type, on the lower half of the cornea. Patient complained of great pain, and there was much photophobia. As far as could be then ascertained, the vision was little if at all impaired.

An examination of the mouth showed that nearly all the teeth were loose, as the result of a chronic pyo-alveolitis.

I personally instilled atropine (1%) into the eye, and, after an hour, the tension was certainly no lower, and the pain as great.

I recommended that dionine in 5% solution should be instilled into the eye once a day, and that a 1% solution combined with 1% atropine should be used three times a day.

Two days later I received a letter from the medical attendant in which he said "the effect of the dionine has been magical." After the first application, the pain left permanently and the symptoms rapidly subsided. The 1% solution was used for a week, when the disease appeared to have come to an end. In March, 1906, I again saw the patient. I then found both eyes free from any kind of inflammation. T.n. in each, V.R. and L. as corrected=6/8. I advised her to have all her teeth removed, and this was done.

Since February there has been no return of the cyclitis.

Remarks.—In this case, which appeared to be one of pure cyclitis, accompanied by secondary glaucoma, atropine alone did not bring the disease to an end, but when combined with dionine, the effect was immediately apparent.

The cause of the cyclitis was almost certainly septic absorption from the mouth. The right eye was very slightly affected at the same time.

NOTES ON A CASE OF ACUTE SEROUS IRRITIS WITH GLAUCOMATOUS SYMPTOMS: CURE BY DIONIN,

BY

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From time to time cases of acute iritis, generally of the serous variety, occur in which glaucomatous symptoms predominate. The difficulty in such an emergency rests in the treatment. To atropin attaches the danger of aggravating the glaucomatous symptoms; to eserin that of increasing posterior synechiaæ. To escape this dilemma and to remove the fibrinous deposits which presumably block the channels of filtration, paracentesis of the anterior chamber suggests itself most readily. But the following experience taught me a further resource:

M. G., a married woman, of 45 years, came to the German Hospital, London, on August 17, 1906, complaining that the day before her right eye had begun to give her intense pain. It was found to be deeply injected; the cornea had a dull, stippled surface and the whole of the back seemed covered with a gray membrane, so that no details of the fundus were visible, and the iris could only be seen indistinctly. The pupil was dilated, but appeared to be round, and re-acted to light. The anterior chamber was, if anything, deeper than in the other eye. The tension was high ($T. + 2$) and sight reduced to fingers at 2 metres. A constitutional disorder to account for the ocular affection could not be ascertained. Paracentesis of the anterior chamber was proposed, but the patient would not remain in the hospital. Under the circumstances, I decided to try the effect of dionin, which under similar conditions I had so far only seen applied in combination with other drugs. A ten per cent solution was applied, which produced a severe chemosis. Soon afterwards, the eye became less painful, and the tension appeared slightly diminished, but this was not beyond doubt. The patient was sent home with a five per cent solution to be instilled three times a day. She was seen again three days later (August 20), when the eye was found to be pale, the tension normal, and V. $\frac{1}{2}$. The surface of the cornea was smooth, and the former membrane resolved into numerous round spots. They decreased speedily under the same treatment, so that on 31 August, only two deposits were left on Descemet's membrane; there was besides some brown pigment on the anterior lens capsule. The pupil was still slightly dilated and not perfectly round in consequence of a small posterior synechia, V. $\frac{6}{6}$. The patient was seen the

last time on September 13., the last deposits on Descemet's membrane had then disappeared, and, apart from traces of brown pigment on the lens capsule and synechia, the eye was normal in function and appearance. The use of dionin with a view of promoting the absorption of pathological substances in the anterior chamber, is indicated also by experiments on animals.

Axenfeld* injected an emulsion of Indian ink into both anterior chambers of a dog, and found that in the eye treated with dionin the ink had disappeared in two or three weeks, while only little absorption had taken place in the other eye which had been left untreated.

Probably cases showing an intense chemosis at the first application of dionin hold out the best prospects.

DIPLOPIA ARTEFACTA.

"At si forte oculo manus uni subdita subter
 Pressit eum, quodam sensa fit uti videantur
 Omnia, quæ tuimur, fieri tum bind tuendo,
 Bina lucernarum florentia lumina flammis,
 Bina que per totas ædes geminare supellex,
 Et duplices hominum facies, et corpora bina."

(*"Lucretius," Liber IV, 450.*)

GEORGE PERNET.

TRANSLATION.

(*From the University Eye Klinik of Graz.—Director : PROF. DIMMER.*)

CONGESTION HYPERÆMIA IN EYE WORK. (Preliminary Communication).†

BY

DR. ROBERT HESSE, Assistant in the Klinik.

The method of congestion in the treatment of disease, introduced by Bier, has triumphantly gained admittance into nearly every department of medicine, and won adherents everywhere, except in ophthalmology.

* *Deutsche medizinische Wochenschrift*, 1905, No. 47.

† Translated from the *Centralblatt für praktische Augenheilkunde*, Juni, 1906.

Attempts have not been lacking to make hyperæmia serviceable in this department of medicine. Thus, in the *Münchener med. Wochenschrift*, 1906, No. 2, there is a communication† by Renner, of Munich, who has undertaken experiments to cause hyperæmia in the eye and its adnexa by placing an elastic band around the neck, and has proved the influence which this congestion has upon various diseases of the eye. According to his observations, this method of treatment had a favourable influence in keratitis parenchymatosa, in so far as the clearing of the cornea appeared to progress more quickly of itself; in *ulcus serpens*, also (with a mixed therapy, it is true) a more favourable course could be recognized; while eczematous and catarrhal ulcers, as well as older corneal opacities, remained uninfluenced.

The way which Renner has chosen for the production of hyperæmia does not appear to me to answer all the requirements to which one is accustomed in a rational method of treatment. In order that a remedy may bring about the desired effect, it must be applied directly to the diseased part, and the strength of its action be regulated as closely as possible.

In Renner's method localization is lacking, and the "dosage," so to speak, is even more difficult, because with the eyes so many other parts are congested, which really should be quite outside the region of the therapeutic action to which, indeed, they certainly cannot be indifferent. In order to cause the desired degree of hyperæmia, the constriction of the neck must be so intense that undesirable collateral effects, also indicated by Renner, may easily occur.

We must therefore endeavour to find a means to permit us to localize as well as to regulate the action and degree of the hyperæmia.

The remedy presents nothing new. As in inflammatory diseases we employ suction on the trunk, where a simple constriction above the infected spot is impossible, it appears natural to apply the same method of causing hyperæmia in eye work. To this end I use a kind of cupping-glass apparatus of about 30 ccm. capacity. The free opening must be made to correspond with the contour of the parts around the eye. It is therefore an oval of which the longer horizontal diameter, of about 33-35 mm., corresponds to the length of the palpebral fissure, which it must entirely cover. The shorter perpendicular is adapted to the height of the orbit and measures about 28-30 mm. Naturally, attention must be given to the conformation of the eye, whatever it may be. The mouth of the

* For abstract see p. 652 of the present number of **THE OPHTHALMOSCOPE**.

cup should not be straight, but slightly curved in the horizontal diameter. To the insertion of the cup is attached a strong rubber tube about 30 cm. long, which ends in a bulb of a capacity of about 50 ccm. (*).

For the production of the action desired a pressure of 20-50 mm. mercury is necessary, which can easily be obtained by this arrangement. Conjunctival bleeding from my own eye was produced under a pressure of 100 mm. mercury. The rarefaction of the air may be measured exactly by means of a manometer consisting of a T-shaped tube. The above rarefaction was used in the experiments which follow. The cup was placed sometimes upon the opened and sometimes upon the closed lids.

When the lids were closed the skin became markedly congested and somewhat oedematous after five minutes, while after about half-an-hour it was livid, and the oedema had increased. On account of this swelling the lid edges became slightly everted, bulging, and reddened. The influence upon the deeper parts was very slight.

It is easy to place the cup so that the palpebral fissure cannot be closed during the suction. The action is then a different one. The same changes are to be seen upon the lids so far as they are in the sphere of congestion, but now the deeper parts of the eye participate.

Thus, the conjunctiva of the lids becomes markedly injected, swollen, and often quite everted by the bulging of the lids, so that their conjunctiva is directly exposed to the suction; then also the changes mentioned above are especially marked. There appears, first, a dilatation of the vessels upon the conjunctiva bulbi; then, from the culs-de-sac on, a serous fluid begins to collect under the conjunctiva, which, after half-an-hour's action (of the suction) advances to the edge of the cornea and shows the picture of a severe chemosis. The cornea, also, does not remain unchanged, for the influence of the increased moisture is noticeable upon it: it appears oedematous and its surface slightly dull.

I could demonstrate no visible changes upon the human iris, but upon that of the rabbit I saw the pupil become distinctly smaller, and the structure appear somewhat washed out (faded?), which might, indeed, be the expression of an increase of volume through an overplus of fluid. Microscopical investigations, including those of the corneal changes, are in progress and will explain the appearances. The fact that the deep vascular system becomes influenced, together with the anterior ciliary

(*). Naturally, a sucking-pump may be used in place of the bulb.

vessels, proves that distinct ciliary injection has come about in nearly all the cases observed. In the lens, the vitreous body, and in the retina no changes could be found, while there was no noticeable change of the intraocular tension.

As a complement to these experiments upon *normal* eyes, I exposed some *diseased* eyes also to the suction, not with any therapeutic result in view, but specially in order to observe the behaviour of the pathological vessel formation—before all in pannus *eczematosus*. In this increased filling of the vessels harmonized with the resulting succulence of the tissues. The capillary loops, also, in spots where no vessels entered the cornea, showed increased filling every time the limbus was swollen.

Secondly, the action upon deep vessels (*keratitis parenchymatosa*) was successfully tested, for there also a suction lasting thirty minutes called forth a distinct influx of blood.

Finally, experiments upon animals (rabbits) were carried out in order to show the action upon the ciliary vessel system. For this purpose a rabbit was subcutaneously injected with $\frac{1}{2}$ ccm. of a 1% fluorescein solution, after which suction was applied to the left eye. After about three-quarters of an hour the green colouring of the aqueous humour and the cornea of that eye was quite distinct, while even after one hour, no trace of it was to be seen upon the right eye. Further experiments on this point, as well as on the action upon the deeper parts, lens, vitreous body, and fundus, I reserve for subsequent report.

If we now draw deductions from these observations and attempt to set bounds to the utility of the new method, it follows that it deserves to be tested in many inflammatory diseases.

Naturally, I first of all put into this class abscesses, furuncles, etc., about the lids or their surroundings, and—with or without incision—*dacryocystitis* also. Experiments must show how far *blennorrhœa* of the lacrimal sac is influenced. The most extended use of suction may, however, be found in all inflammatory diseases of the lid-edges, conjunctiva, and cornea: thus, in *hordeolum* and in *ciliary blepharitis*, cases of suppurating glands or hair follicles, in the different forms of *conjunctivitis*, and, before all, in my opinion, in *conjunctivitis—eczematosa* and *trachomatosa*.

With regard to corneal diseases: the ulcer, above all, is helped; likewise the clearing-up of pannus, or *keratitis parenchymatosa*, in the latter of which vessel-formation is indeed to be regarded as a healing process.

The action upon the ciliary vessels, and the increased discharge into the anterior chamber, do not permit the exclusion of the idea that deep inflammation also, such as *iritis* and *cyclitis*, may not remain uninfluenced. Naturally, it is not possible

to judge a method of cure definitely by theoretical consideration only, for clinical trials must be made, and to these I would urge my colleagues.

Finally, I may be permitted to report the therapeutic results obtained. I confine myself to the detailed description of a case of *ulcus serpens*, and will, in passing, just say that I have seen favourable results from the method in lid abscess, suppuration of the tear-sac, and hordeolum, which I do not regard, however, as anything very new or important.

On the 28th April, 1906, an old man, of sixty years, came into the out-patient department suffering from *ulcus serpens*. The ulcer had a diameter of about 3 mm., lay in the outer-upper quadrant, and showed outwards and upwards a progressive margin. Iritis, with hypopyon of about 1 mm., existed simultaneously. Cauterisation of the progressive margin was immediately resorted to, atropin, iodoform, and a sub-conjunctival salt injection were given, and warm moist applications during the day were ordered, since the patient declined to remain in hospital. On the following day the ulcer had pushed on towards the centre and had a broad progressive margin on the inner side. Cauterisation and the other measures were again resorted to. The following day showed a similar condition. The ulcer had progressed inwards and upwards and had increased on its whole inner side: it thus already extended over the pupillary region, leaving only the inner and lower edge of the cornea free. The hypopyon had reached a height of 2-3 mm. I now abandoned all therapeutic measures, with the exception of atropin for dilating the pupil, and proceeded to suction hyperæmia, at first with caution, daily twice for five minutes at a time. The cornea was already so attenuated that the centre of the ulcer bulged forward like a keratocele and threatened to break down. The result was striking. The pain ceased, the progressive ulcer had nearly completely disappeared upon the second day, the hypopyon was resorbed, and nowhere was an increase in the process to be observed. After six days the suction was stopped once by way of an experiment, and the conjunctival sac merely washed out with oxycyanate solution. Upon the next day the ulcer showed itself to be again progressive downwards and inwards. The congestion alone was now continued in increasing intensity until it was used twice daily for half-an-hour: the result was again that desired, since the ulcer came to a standstill, cleansed rapidly, and began to cicatrize, so that May 16th saw the congestion treatment abandoned, and yellow ointment used instead. The success of the treatment in this case was obvious. We must acknowledge that suction hyperæmia has advantages over other methods. The actual cautery,

which indeed plays the chief rôle in the treatment of *ulcus serpens*, always destroys a portion of the cornea which is not already spoilt by the disease and produces a thick cicatrix: this disadvantage might be remedied with the treatment described. I certainly do not conceal from myself the fact, that one case does not prove this point, and that extensive experiments must be made before the question can be regarded as finally decided.

S. S.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—PATHOLOGY.

- (1) Cirincione.—Anatomical researches on the *retinitis proliferans* of Manz. (*Ricerche anatomiche sulla retinite proliferante di Manz.*) *La Clinica Oculistica*, Gennajo e Febbrajo, 1905.
- (2) Harms, Clemens.—Anatomical researches on the vascular changes within the area of *arteria* and *vena centralis retinae* and their consequences on the circulation, especially with regard to the so-called haemorrhagic infarct of the retina. (*Anatomische Untersuchungen ueber Gefässerkrankungen im Gebich der Arteria und Vena Centralis Retinae und ihrer Folgen für die Zirkulation mit besonderer Benicksichtigung des sog haemorrhagischen Infarktes der Netzhaut.*) von Graefe's *Archiv f. Ophthalmologie*, 61, i.; und 61, 2; 12 September, 1905: i. VIII, 1905.
- (3) Van Duyse.—An epibulbar tumour with foam-like cells. (*Tumeur épibulinaire à cellules écumeuses.*) *Archives d'ophthalmologie*, septembre, 1905.
- (4) Bartels, Martin.—On the blood-vessels of the eye in glaucoma, and glaucoma experimentally produced by obstructing the anterior blood-vessels of the eye. (*Ueber Blutgefässer des Auges bei Glaukom und ueber experimentelles Glaukom durch Versperrung von vorderen Blutbahnen.*) *Zeitschrift f. Augenh.*, August, September, Oktober, und November, 1905.

- (5) Gendron and Servel.—A case of primary lympho-sarcoma of the orbital lacrymal gland, with histological examination. (*Un cas de lympho-sarcome primitif de la glande lacrymale orbitaire, avec examen histologique.*) *L'Ophthalmologie Provinciale*, août, 1905, and *Archives d'ophthalmologie*, septembre, 1905.
- (6) Poulard.—Melano-sarcoma of the iris. (*Mélanosarcome de l'iris.*) *Archives d'ophthalmologie*, septembre, 1905.
- (7) Mayou, M. S.—Intradural tumour of the optic nerve (*Neuro-Fibromatosus*). *Royal London Ophthalmic Hospital Reports*, Vol. XVI, Part 2.
- (8) Mayou, M. S.—Secondary tuberculosis of the iris with spontaneous rupture of the lens capsule. *Trans. Ophthalmological Society*, Vol. XXV (1905), p. 67.
- (9) Polatti, A.—Cavernous (lacunar) atrophy of the optic nerve and dehiscence of the sclerotic in high myopia. (*Kavernöse [lacunäre] Sehnervenatrophie und Dehiscenz der Sklera bei hochgradiger Myopie.*) *Klin. Monatsbl. f. Augenheilkunde*, Januar, 1906.
- (10) v. Michel.—On the occurrence of amyloid in the eyeball and in the ocular vessels. (*Ueber das Vorkommen von Amyloid am Augapfel und an den Augengefässen.*) *Zeitschrift f. Augenh.*, Januar, 1906.
- (11) Ferentinos, Sp.—The nature of simple atrophy of the retina. *Ophth. Klinik*, März, 1906.

(1) Prof. Cirincione having had occasion to make a pathological examination of an eye, which had been affected with retinitis proliferans, gives, in a very elaborate article (with illustrations), a complete description of what takes place in the various tissues of the eye after this variety of retinitis. The length and detail of his publication, which is very interesting, cannot be reduced to a short abstract, and I therefore limit myself to giving only his conclusions, *viz.*:

1. The singular characteristic appearance of the fundus in the retinitis of Manz is undoubtedly due to a newly-formed fibrous tissue which furrows the internal surface of the retina in the shape of more or less prominent cords projecting sometimes into the vitreous in the form of clubbed or membrane-like prolongations.

2. The newly-formed fibrous tissue is thickest at the optic

disc, and is exclusively confined to the central blood-vessels and their branches giving the characteristic appearance to the fundus in this disease.

3. The newly-formed fibrous tissue occupies the stratum of the optic fibres and ganglionic cells.

4. The central blood-vessels are sclerotic, both on the disc and on the retina, and their lumen is obliterated in various points. This sclerosis is found to diminish gradually towards the equator of the retina as well as towards the trunk of the optic nerve.

5. Small blood-vessels of new formation are to be found in the thickness of the retina underneath the newly-formed fibrous tissue.

6. The retina presents marked hypertrophy of its fibres, proliferation of neuroglia, and atrophy of its nervous elements.

7. The choroid and the optic nerve are the seat of atrophic degeneration.

8. The vitreous and the anterior segment of the eye present no alterations of consequence.

9. The intraocular haemorrhages and glaucoma are secondary complicating symptoms independent of the retinitis of Manz, which is a local disease and not the result of general arteriosclerosis or blood changes.

10. The ethiological cause of this disease is to be looked for in the presence of irritating substances (chemical or toxic) in the vitreous humour which act principally on the connective sheath of the papillary blood-vessels. CHARLES MANCHÉ.

(2) Referring the reader to the original for details, the following conclusions to which Harms arrives, after extremely careful examination of a large number of specimens, may be quoted:—

1. The distinction between embolism of the central artery and thrombosis of the central vein cannot be retained, as both vessels are in all cases diseased, and the primary affection of either system may produce one or the other ophthalmoscopic appearance, according to its complication or otherwise with an affection of the other trunk.

2. The complete or nearly complete occlusion of both central vessels is caused by the intersection of the affected vessels upon each other. The primary sclerosis of a vessel which is not yet completely obstructed produces slowing-down of the circulation, especially if general or local contributory causes (weakness of heart-action, changed condition of blood, etc.) supervene. This leads to thrombosis, and this again to increase of the sclerotic process, which now goes on to complete blocking of the lumen.

3. Mostly the ramifications (arteries and veins respectively)

suffer before the other trunk becomes obstructed, but occasionally we find a kind of distance-action of one system on the other without affection of the connecting links.

4. The affection of the system, which is secondarily involved; may be clinically more marked, while the lesion of the other system is anatomically preponderating.

5. Simultaneous occlusion of both artery and vein by the same local process (thrombosis or proliferation of the retina) has not been hitherto proved (with one possible exception). It seems therefore likely that obstruction of both systems is due to the action of impaired circulation caused by primary affection of one system only.

6. The existence of genuine haemorrhagic infarct—in the meaning of Sohnheim—has not been anatomically established. The ophthalmoscopic picture which has hitherto been described as haemorrhagic infarct or post-anæmic haemorrhage is really the expression of a combination of embolism of the central artery and thrombosis of the vein, in an anatomical as well as in a clinical respect.

R. GRUBER.

(3) Van Duyse excised a supposed epibulbar lipo-dermoid from the eye of a child, aged 3 years. The tumour, which had existed for two years, was stated to have grown, at first slowly and then more quickly. The slightly lobulated mass was of pale yellowish colour, and extended from the upper and inner part of the conjunctival cul-de-sac over the surface of the sclera to encroach for about 2 mm. upon the cornea. The neoplasm was firmly adherent to the episcleral tissues. Measurements were : long diameter, 18 mm., and transverse diameter, 9 mm. The tumour, after removal, was fixed in Flemming's solution, embedded in paraffin, cut, and stained with safranine, van Gieson's liquid, and Heidenhain's iron haematoxylin. It was noted that Flemming's solution failed to turn the specimen black, thereby showing the absence of fat. The characteristic feature of the growth lay in the presence of spongy neoplastic cells, which occupied the entire thickness of the ocular conjunctiva. These cells, the so-called *cellules écumeuses*; or *Schaumzellen*, resembled those found in xanthoma of the ocular conjunctiva and of other parts. The elements were separated from one another by an intercellular stroma, and capillary blood vessels were present. The mass of the foam-like cells was marked off from the epithelium of the ocular conjunctiva by a layer of dermic tissue; carrying capillaries gorged with red blood cells, and staining well with fuchsine. Giant cells undergoing spongy changes were found in some of the sections. Van Duyse concludes that the tumour he describes was of mesodermic origin—an endothelioma, in fact, with foam-like hypertrophy of the protoplasm of the elements. It was, in other words,

xanthoma, less fatty infiltration. As regards the foam-like condition, the author offers two explanations, *viz.*, 1st—The alveoli were constituted by an accumulation of hyaline droplets in process of metamorphosis which is the expression of the endothelial cells, and so often noticed at the level of tumours of the conjunctiva. 2ndly—It was concerned with a form of degeneration analogous to parenchymatous degeneration or to cloudy swelling, a condition called by writers "hydropic," found in oedematous tissues, inflammatory deposits, and, above all, in carcinomata. The introduction of liquid makes the contents appear clear; the protoplasmic grains are separated and crowded together towards the periphery; vacuoles are formed, corresponding to clear droplets. The nucleus shares this fate. Finally, cells and nuclei dissolve. The foam-like state, if it is comparable with the preceding modifications, is distinguished from the latter by the regular dimensions of the vacuoles. S. S.

(4) **Bartels** attempts to solve the essential nature of glaucoma by examining the condition of the blood-vessels, and comes to the following conclusions: disease of blood-vessels is very frequently present in glaucoma, mostly of the nature of arteriosclerosis, and presenting nothing specific or characteristic of glaucoma, and not sufficing to explain the increased tension.

There exists undoubtedly in glaucoma a primary change in the blood-vessels, of an inflammatory nature, but the relationship between the two is not clear.

In many cases there was found to co-exist in the same eye a narrowing of the intra-scleral portions of the anterior ciliary arteries and a dilatation of the posterior ciliary arteries.

It is possible, by obstructing the outflow from the eyeball, by severing the connections of the conjunctiva and muscles, to produce a long-lasting increase of tension with a normal angle in the anterior chamber.

A. LEVY.

(5) A man of 18 years developed a growth in the region of the lacrymal gland. An exploratory puncture having yielded negative results, the tumour was removed by Krönlein's method, slightly modified. But the patient died, presumably from a metastasis at the base of the brain, about six months after the operation. Pathological examination: The tumour, encapsulated, measured 35 mm. by 29 mm. by 17 mm., and weighed 9 grammes. Microscopical examination of different parts of the growth showed that it was essentially in the nature of a globo-cellular sarcoma or of a lympho-sarcoma, developed at the expense of the internal aspect of the capsular conjunctiva, which in the normal state envelops the orbital lacrymal gland. S. S.

(6) **Poulard's** patient, a woman of 55 years, had a blackish growth, at least the size of the crystalline lens, occupying the

upper half of the anterior chamber of one eye. The eyeball was enucleated. Histological examination showed a sarcoma developed at the expense of the stroma of the iris, leaving intact the posterior epithelial surface of that structure. It was composed of fusiform cells, together with many pigmentary cells.

S. S.

(7) The patient was a girl, aged 5 years, who when first seen had right convergent strabismus, but there was some proptosis of the left eye and the vision was lost. The movements of the globe were unimpaired, and the pupil was inactive, except consensually. The optic disc was atrophied; the arteries were small and the veins considerably enlarged. The eye was more hypermetropic than the other.

On opening the orbit a hard rounded tumour could be felt wedged into the apex of the orbit. There was $\frac{1}{2}$ cm. of free nerve between the globe and the tumour. With curved scissors the nerve was cut as close as possible to the optic foramen, and another cut freed it from the eyeball. The parts were then replaced. Enormous proptosis followed, which caused ulceration of the cornea, but this healed. At first there was complete ptosis, the cornea was anaesthetic and the movements of the globe were abolished. Most of these symptoms recovered to a certain extent.

The tumour was 2·5 cm. long and 1·8 cm. wide, of a fusiform shape, while the cranial end of the optic nerve measured double that of the part in front of the growth. It was situated entirely within the dural sheath. The long ciliary nerves and artery were spread out over its surface, and near its posterior extremity was a portion of the third nerve; as the posterior part of the growth was jammed into the apex of the orbit the cutting of these was inevitable. Microscopically the tumour was seen to be completely encapsulated by the sheath of dura mater, which was not infiltrated with the tumour although it was distended. The tumour consisted of two portions, the lower through which the nerve passed, and the upper which did not contain any portion of the optic nerve. These two were separated by a fine membrane probably derived from the pial sheath. The nerve fibres were much degenerated, although Marchi's method did not show it, probably due to the length of time the degeneration had been present (7 months). The blood vessels were scanty, but when present were well formed and usually had both endothelial and perithelial coverings. The paper is illustrated with eight photomicrographs illustrating the condition found.

C. D. M.

(8) A poorly-developed child of three years, suffering from tuberculous dactylitis, developed conglomerate tubercle of the

iris, on account of which the eye was enucleated. The pathological examination (undertaken by **Mayou**) showed, amongst other things, that the exudation in the iris contained a few giant-cells, but practically no epithelioid cells, and no tubercle bacilli. The upper part of the cornea was dimpled, by reason of the traction exercised by the cicatrical tissue that had formed in the iris, and for the same reason the anterior capsule of the lens had ruptured at about its centre. The retinal vessels were surrounded by masses of round cell exudation, considered by the author to be of tuberculous nature.

(9) **Polatti** gives a well-illustrated account of the anatomical examination of two highly myopic eyes (more than 30 D.). The two most important and unusual changes found were—first, such an extreme thinning of the sclerotic that its continuity was actually interrupted in several places; secondly, the optic nerves showed a partial but extensive atrophy, which was distinguished by the presence of numerous cavities and secondary proliferation of the glia. This type of optic atrophy has been found so far only in glaucoma (**Schnabel**), but, according to this experience of Polatti, it occurs evidently also in excessive myopia, independently of glaucoma.

C. MARKUS.

(10) **v. Michel** recounts the case of a young man who died of contracted kidney, with amyloid disease, in whom, in addition to a widespread amyloid change all over the body, there was an amyloid endarteritis of the arteria centralis and its branches, as well as of the choroidal vessels and of the chorio-capillaris. **v. Michel** comments on the rarity of this occurrence, and divides amyloid disease of the eye into two groups—first, that in which it is local and limited to the eye, and, second, that where it is part of a general amyloid degeneration. It has been found as a local change in the cornea in scars, staphylomata, and has been produced, experimentally, in the vitreous in haemorrhages, and in the retinal vessels in phthisis bulbi. When it occurs as part of general disease it is most frequent in the ciliary arteries and the chorio-capillaris.

A. LÉVY.

(11) By "simple atrophy of the retina" **Ferentinos** means retinitis pigmentosa. The paper begins with the statement that all writers are agreed that this condition is not an inflammatory one! We are afraid that this is not actually the case, much though we should like it to be otherwise. The object of the communication is to advance a theory as to the nature of the atrophy, and, briefly put, it is as follows:—the process is not a pathological, but a physiological one, and corresponds to that of the involution of the thymus and mammary glands. All the tissues of the body undergo this process sooner or later. The eyes of those persons in whom the atrophic

condition is found, are predestined to an early death, a premature process of involution. The latter begins first in the more highly developed cells. As these degenerate, and larger and larger portions of the retina cease their functions, the demand upon the blood supply decreases, and the vessels diminish in size. Since the vessels cannot do so at once, the connective tissue receives more than its ordinary share of nourishment, and hypertrophies. Later on it atrophies when the blood supply has diminished in proportion to the nervous elements that have degenerated, and by its contraction leads to further degeneration of the nervous cells. In this way a vicious circle is set up.

PERCIVAL J. HAY.

II.—ANÆSTHESIA IN EYE SURGERY.

Calderaro.—*Anæsthesia in Ophthalmic Surgery. (Sulla anestesia in chirurgia oculare.) La Clinica Oculistica, June, 1906.*

In this paper Calderaro discusses the question of the use of general and local anæsthetics in the practice of ophthalmic surgery, and, on the whole, agrees with the German school, which avoids general anæsthesia on all possible occasions. As regards local anæsthetics, he has found none equal to cocaine.

Even in acute glaucoma, he has found it unnecessary to have recourse to general anæsthesia, but then he does not interfere in the acute stage, preceding iridectomy by the use of purges and myotics, and, if necessary, by corneal puncture. In cases where he has reason to expect hyperæsthesia of the iris, he instils a few drops of cocaine after making the corneal section, and in this way obtains the required loss of sensation.

The large majority of operations on the adnexa are made possible by subcutaneous injection of cocaine. Excision of the eye and of the lacrymal sac are easily performed after such preparation. When a general anæsthetic is required, nothing is so good for the ophthalmic surgeon as chloroform.

Calderaro has practically abandoned general anæsthesia, not for fear of the risk, but for the greater convenience of the patient and operator.

HAROLD GRIMSDALE.

III.—GLIOMA OF THE RETINA.

(1) **Rochon-Duvigneaud.**—On the prognosis and treatment of glioma of the retina. (*Sur le prognostic et le traitement du gliome de la rétine.*) *La Clinique Ophthalmologique.* 25 mars, 1906.

(2) de Spéville.—**Glioma of the retina of the left eye ; enucleation ; recovery.** (*Glioma de la rétine de l'œil gauche ; enucléation ; guérison.*) *La Clinique Ophthalmologique*, mars 25, 1906.

(1) This is an interesting and clearly put statement of the indications, according to the author's experience, for exenteration of the orbit as against simple enucleation in glioma. Briefly, **Rochon-Duvigneaud** says, that in all cases the parents' consent should be obtained in the first instance to an histologically complete intervention. After enucleation, the eye and optic nerve are to be carefully examined, as well as the orbital cavity. A sharply-cut section of the optic nerve immediately behind the eyeball will reveal the information sought, with considerable accuracy. If the nerve has preserved its white colour and normal volume the prognosis is good, and enucleation may suffice. If the nerve is small and atrophied, even though it appear free from tumour tissue, the orbit should be cleared out. When the nerve is increased in size and lardaceous in appearance, or if it merely presents a grey core of infiltration, exenteration should be done without further delay. Other points taken up in this paper are the prognosis after operation—two years' freedom from recurrence is a safe period—and the contrast between the choroidal sarcoma and glioma of the retina, from the point of view of urgency of operation on the orbit. "It is quite exceptional to find the optic nerve invaded in examining enucleated sarcomatous eyes, and, if it is atrophied, this atrophy does not necessitate, as in glioma, exenteration of the orbit. Exenteration is only necessary if the sarcoma has issued from the eye at any point." While glioma of the retina tends to invade the orbit and to spread locally, sarcoma has much less tendency to invade the orbit and a much greater tendency to spread by metastasis. Therefore there is great urgency in glioma. "I have the firm conviction that the great majority of gliomas, if taken to the operator early enough, can be definitely cured by immediate and histologically complete intervention."

ERNEST THOMSON.

(2) de Speville relates a case where a glioma was seen very early and before central vision had become affected. The eye was enucleated (without interference with the other orbital contents), and the tumour found to be as yet confined to the retina. The child remained well seven years later. ERNEST THOMSON.

IV.—COUCHING OF THE CRYSTALLINE LENS.

Elliot, Major R. H.—On couching of the lens as practised by native practitioners in India. *Ind. Med. Gazette*, August; 1906.

Elliot gives his observation of the results of depression of the lens in 125 eyes by Mahomedan *vaithyans* in Southern India. The period which had elapsed since the operation varied from less than a month to ten years and over. There were 23·2 % successes, 8 % partial successes (counting fingers at 2 ft. or less), and 68·8 % failures. The chief cause of failure was septic inflammation of the uveal tract. This is not to be wondered at, considering that the operators use "a dirty needle or a sharp wooden skewer," and have no conception of asepsis or antisepsis. Of the total failures, 86 in number, 52 were accounted for by iritis and irido-cyclitis. It may be accepted that these losses could have been eliminated by careful asepsis. Of the remaining failures 17 were due to glaucoma and 13 to imperfect dislocation of the lens. Ten of the glaucomas—8% of the total operations—were apparently attributable to the operation. Though some of the ten cases were probably the result of irido-cyclitis, others were not to be thus explained. Elliot had looked in vain for any signs of the "slow and steady progressive degeneration of the vitreous and of the retina," mentioned by H. Smith in the *Trans. Ophth. Soc.*, 1904. He considers in detail Power's indications for depression as stated in the *Indian Medical Gazette* of May, 1905, but he does not specially consider the treatment of cases where the fellow eye has been lost by intra-ocular haemorrhage complicating cataract extraction. He opposes Maynard's opinion that depression may be performed "under certain circumstances," and concludes "that to advocate couching under any circumstance would be to set the clock of progress back many decades."

H. H.

V.—THE EYE IN DEATH.

De Micas.—The eye in death: an ocular medico-legal study. (*L'Œil dans la morte: étude de médecine légale oculaire.*) *Recueil d'ophthalmologie*, août, 1906.

De Micas discusses this subject under three main heads:—
 (I) The thanatological eye ; (II) the revealing eye ; (III) the accusing eye.

(I) Under the title of *thanatological eye* are included those changes which take place in the eye and its adnexa after death. Approaching death is heralded by failing vision and suppression of tears resulting in dryness of cornea which may result in keratitis and ulceration from lagophthalmos. The lids at death are half-closed, as a rule, and the eye is turned upwards and outwards. Insensibility of the conjunctiva and cornea and dilatation and fixity of the pupil are important, although not conclusive, signs of death. Ophthalmoscopic examination, which is only feasible during the first few hours after death, shows disappearance of the papilla, absence of the blood-column in the retinal arteries, partial emptying of the retinal veins, and a grey discolouration of the choroid. The eye generally becomes flaccid, and if the lids remain open, the sclerotic becomes yellow and develops a bluish-black spot, which disappears with advancing putrefaction. According to Legrand, Purkinje's (*sic!*) images may be used to establish the existence of death. The third disappears firstly, then the second, and, lastly, the first. The two posterior images often disappear during the agony, later the first becomes ill-defined and ceases to be reflected 6 to 12 hours after death.

(II) The *revealing eye* may show evidence of medico-legal importance. The closed eyelids of a lady, supposed to have died alone, aroused the suspicion of the relatives, and eventually led to the arrest and confession by her cook, who had decamped with the securities.

The state of the lids after death is, however, by no means constant. Valude, in 100 cadavers examined 24 hours after death, found: 60 half-closed; 15 fully open; 12 with one eye closed and the other eye open; 7 closed. After a while those open or half-closed tend to become closed, but as the rate of closure is only 1 mm. or 2 mm. a day, only those half-closed can become fully closed in the ordinary way.

In deaths resulting from somewhat prolonged illnesses, the state of the lids were as follows:—Tuberculosis: 25% open; 5% closed; the rest half-closed; Pneumonia, 95% closed.

Heart Disease.—The lids are generally closed owing to oedema, but in cases of syncope they are open. In infective endocarditis and purulent pericarditis the eyes are half-closed, as is the rule in infectious cases.

Kidney Diseases.—Lids half-closed, as in other intoxications, but where there is oedema of the lids, they are closed. The same applies to eclampsia.

Typhoid Fever.—When death is slow the eyes are half-closed, but when due to collapse or syncope they are open.

Cancer.—The eyes are open in 80% of deaths from cancer.

Nervous Diseases.—Whether death be sudden or slow in these cases the lids are seldom open. They are either partly open or firmly closed.

In cases of sudden death of people previously in apparent good health the eyes are closed unless there be an unrecognised old or chronic lesion when the eyes would be half-closed.

In death by violence the condition of the lids vary, e.g., suicide by revolver shot, injury of the head is associated with two-thirds of the cases, probably because the suicide either voluntarily or instinctively shuts his eyes when he pulls the trigger.

The victims of assassination have their eyes open, as a rule, but deductions on these grounds are of little value, as the circumstances are so variable.

After death from hanging the eyes were found closed in 52%, half-closed in 32%, open in 16%.

After drowning the eyes are generally closed if the bodies are recovered early before putrefaction has set in.

Poisoning by charcoal fumes is associated with half-closed lids. In other forms of suffocation, e.g., infants suffocated in bed, the eyes are closed. Poisons have varying effects on the condition of the lids after death.

(III) The *accusing eye*. Apart from abnormal position of the lids already noted, the condition of the eye is not likely to help in the elucidation of crime. There is no truth in the statement, occasionally made in the pages of fiction, that the eye of a victim retains the image of his murderer.

J. JAMESON EVANS.

VI.—THE ACTION OF ANILINE COLOURS UPON THE CONJUNCTIVA.

Vogt, Alfred.—Clinical and experimental researches on the action of artificial aniline colours upon the conjunctiva. (*Recherches cliniques et expérimentales sur l'action des couleurs artificielles d'aniline sur la conjonctive.*) *Archives d'ophthalmologie*, avril, 1906.

It is a matter of familiar knowledge that serious injury may follow the introduction of aniline colours, or of substances containing aniline, such as copying pencils, into the eye. Several such cases are on record in this country and elsewhere. The great modern development of the aniline industry has rendered these accidents commoner than was formerly the case, and has made it desirable that we should

possess precise information, both clinical and experimental, upon the subject. **Vogt**, assistant in the Basle *clinique*, has an elaborate article (translated from the German) in the *Archives d'Ophthalmologie* for April last, dealing with the action of various aniline colours upon the conjunctiva. As the result of experiments with seventy different colours, he has reached the following conclusions :— 1. The aniline colours affect the conjunctiva differently according to their chemical constitution. For example, the application to the conjunctiva of from 5 to 10 milligrammes of acid, neutral, or mordant colours, or of colours that are insoluble in water, produces little, if any, inflammation of the mucous membrane. 2. When an equal quantity of a basic colour is placed in the cul-de-sac, marked inflammation, which may even lead to panophthalmitis, is set up. The different basic colours act upon the conjunctiva with variable intensity. 3. Experiments on rabbits show that the action of even the most caustic basic colours may be neutralised or destroyed by irrigation of the conjunctival sac with a 5% solution of tannin. On the other hand, it is important to bear in mind that to flush the injured parts with water or with solutions of sodium chloride, boric acid, or sodium bicarbonate, is to do more harm than to leave the eye alone.

S. S.

VII.—AFFECTIONS OF THE SKIN AND OF THE EYES.

- (1) **Ischreyt.**—Two cases of *xeroderma pigmentosum* with tumours of the eyelids. (*Zwei Fälle von Xeroderma Pigmentosum mit Tumorbildung den Lidern.*) *Zeitschr. f. Augenheilk.*, Juli, 1905.
- (2) **Koerber.**—A case of pemphigus of the conjunctiva. (*Ein Fall von Pemphigus der Bindehaut.*) *Centralbl. f. prak. Augenh.*, Dezember, 1905.
- (3) **Hilbert.**—On conjunctivitis in erythromelalgia. (*Ueber eine Bindehautentzündung bei Erythromelalgie.*) *Woch. f. Therapie und Hygiene des Auges*, 22 Marz, 1906.
- (4) **Jacqueau, A.**—Vaccine infection of the conjunctiva. (*Infection vaccinale de la conjonctive.*) *La Clinique Ophthalmologique*, 10 juin, 1906.
- (5) **Reis, Wilhelm.**—Eye disease and *erythema nodosum*. (*Augenerkrankung und Erythema Nodosum.*) *Klin. Monatsbl. f. Augenheilkunde*, September, 1906.

(1) **Ischreyt** describes two cases. The first in a boy of 10 years of age, who for eight years had pigmented spots on the skin of the face and eyelids. The eyes became bad and caused much trouble, vision being very much reduced, and latterly definite tumours have formed on the lids. Both corneaæ show a pannus-like growth. The second case, in a boy of 13, is not so marked, and there is no definite tumour formation. The tumour, in the first case, was removed and proved to be a small-celled carcinoma. The author describes three stages in the progress of this disease—(1) Period of erythema and some discolouration. (2) The formation of teleangiectatic growths. (3) Formation of definite tumours.

A. LEVY.

(2) **Koerber** records a rather mild case of pemphigus of the conjunctiva, the only unusual feature of which was commencement of the disease on the glans penis where the resulting ulcer was mistaken for a syphilitic chancre and treated as such. Later, the conjunctivæ and the palate were attacked and the shrinkage of the conjunctiva cleared up the nature of the case, showing it to be really one of pemphigus. At no time were any secondary syphilitic signs present.

A. LEVY.

(3) **Hilbert** describes a case which he believes is unique. A delicate anaemic woman of 45 years was found by him acutely ill with severe pains in the limbs, pain in the eyes, and lacrymation. The eyelids on both sides were blue-red in colour and were so swollen and hard that the upper lids could not be everted; pain was present both to touch and spontaneously. The conjunctivæ of the lower lids were intensely red, swollen, and velvety. There was only trifling injection of the bulbar conjunctiva, and no photophobia. In addition, the terminal phalanges of the fingers and toes were blue-red in colour and very painful. The diagnosis was erythromelalgia, and the question arose whether the eye symptoms were an accidental complication, or whether they formed part of the general disease. After summing up the matter, Hilbert concludes that this unusual conjunctival catarrh was a rare manifestation of the angioneurosis. All the symptoms disappeared in fourteen days by application of cold locally and the internal administration of syrup of iodide of iron.

ERNEST THOMSON.

(4) **Jacqueau** relates in full a case of accidental infection of the conjunctiva of the mother from the arm of the child. The diagnosis was made by exclusion, namely, an intensely acute conjunctival inflammation, with glandular involvement, which runs a benign course, no other known source of infection, and no bacteriological evidence pointing to any other source.

ERNEST THOMSON.

(5) The case reported by **Reis** is remarkable in many

respects. A man, aged 34, suffered from bilateral cyclitis, which, in the course of several months, showed frequent aggravations and relapses. The symptoms consisted chiefly in ciliary irritation, hypopyon, and exudation in the vitreous, while the iris played a less prominent part in the disease. On the other hand, one optic nerve were completely atrophied. No constitutional cause was ascertained for a long time. But four months after the onset of the eye-affection the patient was seized with fever, and changes characteristic of erythema nodosum appeared in the skin of both legs. A few days later nearly the whole iris of the right eye was seen to be covered with haemorrhages, which, however, became rapidly absorbed. A posterior cortical cataract occurred in this eye about the same time, and, strikingly enough, disappeared in the course of a few weeks. The optic atrophy is thought by Reis to be most likely due to an infectious optic neuritis dependent upon the general disease; but the possibility of haemorrhage in the optic nerve sheath is also considered. A special and also a general deduction follow from the author's interpretation of his case. Erythema nodosum is to be included in the constitutional causes of irido-cyclitis; and a severe uveitis may be the early and even the sole symptom of a general infectious disease.

C. MARKUS.

VIII.—GONORRHŒAL AFFECTIONS OF THE EYE.

- (1) Baylac, D.—Double iritis in a case of gonorrhœa. (*Iritis double dans un cas d'infection blennorragique.*) *La Clinique Ophthalmologique*, 25 mars, 1905.
 - (2) Gendron.—Relapsing gonorrhœal iritis. (*L'iritis blennorrhagique à rechutes.*) *L'Ophthalmologie Provinciale*, T. I, p. 4, avril 1905.
 - (3) Galezowski.—Gonorrhœal irido-choroiditis. (*Des irido-choroidites gônococciques.*) *Recueil d'Ophthalmologie*, juin, 1905.
 - (4) Lemierre, A. and Faure-Beaulieu, M.—Gonococcal septicemia and pyemia. (*Septicémie et pyohémie gônococciques.*) *Gazette des Hôpitaux*, 17 et 24 février, 1906.
 - (5) Bailliart.—A case of gonorrhœal ophthalmia regarded as an accident at work. (*Un case d'ophtalmie blenorragique considéré comme accident du travail.*) *Recueil d'Ophthalmologie*, juillet, 1906.
- (1) Baylac reports a case of severe double iritis and joint

affection in a patient, with a rheumatic family history, who had a mild but untreated gonorrhœa. Under treatment the eyes were cured.

ERNEST THOMSON.

(2) **Gendron** records three cases of iritis which appeared for the first time as a complication of gonorrhœa and *recurred without being accompanied by any fresh urethral symptoms*. There was no sign of arthritism in any of the patients. Gendron considers that the occurrence of these relapses was due to the action of toxins rather than of living gonococci, an opinion which is confirmed by the fact that the hypopyon removed by paracentesis from two of the cases was examined and found to contain no microbes.

R. J. C.

(3) A clinical lecture on the metastatic ocular complications of gonorrhœal urethritis. Cases of iritis, choroiditis, and neuroretinitis are recorded by the author and attributed to the gonorrhœal poison circulating in the blood.—*Vide THE OPHTHALMOSCOPE*, Vol. III, p. 458, 1905.

(4) This is a long, interesting, and exhaustive paper, in which **Lemierre** and **Faure-Beaulieu** discuss the subject of general gonococcal infection, under the headings of gonococcal septicemia, gonococcal metastatic septicemia and pyemia, clinical forms of the disease, diagnosis, prognosis, and treatment. Only a short reference is made to eye lesions of a metastatic nature, namely, metastatic conjunctivitis (Moll), iritis (Lapersonne), dacryo-adenitis (Terson), retinitis, Tenonitis (Puech), and panophthalmitis (Panas). Of these eye lesions the authors say "they are probably metastases, because they are always connected with a gonococcal septicemia, but bacteriological proof is still wanting."

The paper, which contains full references to literature, should be read in the original by all who are interested.

ERNEST THOMSON.

(5) **Bailliart** records the case of a boy, æt. 15, who whilst removing some stains of printers ink from a tablecloth, got some liquid, composed of "essence" and ink, into his eye. The immediate symptoms were practically *nil*, but two days later the eye showed definite signs of acute infection, and a microscopical examination of the purulent discharge showed an abundance of intra- and extra-cellular gonococci. The patient had no urethritis. Recovery was rapid and complete. Whatever the consequences, the author considers that such condition should be regarded as a working accident, because (1) there was a definite injury, (2) the infection could not have occurred apart from the injury, as the patient had no urethral discharge, (3) the accidental origin of the trouble was recalled after an average incubation period for gonorrhœal ophthalmia.

Schmeichler recorded a similar case where a workman lost the sight of one eye through its infection by a fellow workman, who had a urethral discharge and who removed a foreign body from his eye. This patient was indemnified as for an accident.

Baudry saw two cases of infection, one by dust and the other by machine oil. One at least of these men was free from urethral discharge. Baudry takes an opposite view to that of Baillart, because purulent ophthalmia can only be due to contagious infection by the gonococcus, which is quickly destroyed by exposure to air, drying, or immersion in alkaline or acid oils.

It is probable that in all the cases the infection occurred through the fellow workmen's hands. J. JAMESON EVANS.

IX.—TUBERCULOUS AFFECTIONS OF THE EYE.

- (1) **Coats, George.**—A case of tubercle of the nerve head. *Royal Lond. Ophth. Hosp. Reports*, Vol. XVI, Part 3.
- (2) **Carpenter, George, and Stephenson, Sydney.**—Tuberculosis of the choroid. *British Journal of Children's Diseases*, June, 1906, *La Clinique Ophtalmologique*, 10 juillet, 1906, and *Die Ophthalmologische Klinik*, 25 August, 1906.
- (3) **Péchin, Alph.**—Thrombo-phlebitis of the central vein of the retina in a tuberculous subject. (*Thrombo-phlébite de la veine centrale de la rétine chez un tuberculeux.*) *Archives d'ophtalmologie*, juillet, 1906.
- (4) **Péchin, Alph.**—A special form of tuberculosis of the uveal tract. (*Forme spéciale de tuberculose du tractus uvéal.*) *Archives d'ophtalmologie*, août, 1906.
- (5) **Gourfein.**—Primary conjunctival tuberculosis. (*Tuberculose conjonctivale primitive.*) *Archives d'ophtalmologie* septembre, 1906:

(1) The case recorded by **Coats** is that of a child, aged sixteen months, who died from general tuberculosis. The left eye was removed *post-mortem*, and examined pathologically. The point of chief interest lay in the fact that a large granulomatous mass was present in the eyeball, growing from the nerve head, which was proved to be tuberculous. There was no other lesion in the retina, but the mass extended well into the

nerve. Details of other cases previously reported are given, as well as full references to the literature. A plate shows the appearance of the growth and also of the sections. C. D. M.

(2) Carpenter and Stephenson publish a profusely-illustrated account of a large number of cases of tuberculosis of the choroid, based upon a communication read in May last before the *Société française d'ophtalmologie*. The authors have studied 80 cases met with in their own work, chiefly at hospitals for children in London. Of these cases, 49 were acute, 11 chronic, and 20 extinct or obsolescent. A study of the figures gives a wonderfully good idea of the appearances, considering that these pictures are reproduced upon the ordinary paper on which the journals are printed. Indeed, to appreciate the article so much depends upon seeing the drawings, that reference to the original is essential. One point, in particular, may, however, be mentioned. The authors admit that in the absence of a pathological examination it is impossible to affirm definitely whether a cicatrical patch in the choroid is of syphilitic or tuberculous nature. The question, as a rule, must be decided on the collateral evidence.

E. T.

(3) A man of 30 years, affected with facial paresis, suddenly lost the sight of one eye, which remained painful for six days after the accident. Vision returned a few hours later, and after having been maintained for a day or so, was definitely lost. Péchin found that the blindness was due to thrombo-phlebitis of the central vein of the retina. There was a history of pneumonia, after which the patient had never recovered his health properly, and when the man came under observation on account of his eye, suppurating glands were present on one side of the neck. There was no cardiac disease.

H. DE V.

(4) Péchin describes two atypical cases of tuberculosis of the uveal tract, which he regards not, as "attenuated" forms, but as forms which correspond with tuberculous intoxications of special evolution. One of the patients, a woman aged 26 years, presented tuberculosis of the lungs, while the other, a woman of 22 years, was of delicate constitution and looked tuberculous. The eye changes in the first case included the remains of an iritis, vitreous opacities, and a number of round or oval spots, of yellow colour, resembling drops of oil, arranged row upon row towards the periphery of the posterior surface of the cornea. Examination with oblique illumination and a lens was required to recognise these deposits. The second case was characterised mainly by episcleral and corneal deposits, of relapsing nature, keratitis punctata, and, later, by deposits comparable with those mentioned as present in the first case, by posterior synechiae, and by a granuloma of the iris.

S. S.

(5) Among 49,000 patients seen by Gourfein during the last eleven years at the *Fondation Rothschild* at Geneva, three cases only of tuberculosis of the conjunctiva have been recognised. The affection is therefore exceedingly rare. The prognosis is more serious than is generally thought. The ulcerous type of the disease is the one most likely to become generalised. There may be long remissions in the activity of conjunctival tuberculosis. The author reports two cases of primary tuberculosis of the conjunctiva (both confirmed by inoculation of animals), of which the first, in a child of five years, was followed by death from cerebral tuberculosis, while the second, in a patient of twelve years, was permanently cured by repeated excision and cauterisation of the granulations.

S. S.

X.—TREATMENT.

(*Ninth Notice.*)

- (1) **Baudet, H. P.**—Indications for electric treatment. *Ned. Tijdschrift voor Geneeskunde*, 1905, II, No. 22.
- (2) **Koster.**—Compressed medicaments in ocular therapeutics. *Ned. Tijdschrift voor Geneeskunde*, 1906, I, No. 13.
- (3) **Koster.**—The treatment of diseases of the eye by means of chlorate of potassium. *Ned. Tijdschrift voor Geneeskunde*, 1906, I, No. 16.
- (4) **Spéville.**—Two cases of blepharospasm cured by two different methods. *La Clinique Ophthalmologique*, 10 mai, 1906.
- (5) **Scholtz, K.**—Determination of the action of jequiritol and jequiritol serum by means of experiments on animals. *Archiv für Augenheilkunde*, Juni, 1906.
- (6) **Santon, Henry.**—On the treatment of rheumatic iritis by intravenous injections of sodium salicylate. *La Clinique Ophthalmologique*, 10 juin, 1906.
- (7) **Gasparrini.**—A case of pulsating exophthalmos cured by instillation of adrenaline. *La Clinica Oculistica*, June, 1906.
- (8) **Renner.**—On Bier's congestion hyperæmia in eye diseases. (*Ueber Bier'sche Stauungshyperämie bei Augenkrankheiten.*) *Münch. med. Woch.*, 1906, Nr. 2, und *Centralbl. f. prakt. Augen.*, Juni, 1906.

- (9) Verderau.—The therapeutic treatment of senile cataract. *Archivos de Oftalmología Hispano-Americanos*, Julis, 1906.
- (10) Fernandez.—An advantage and an inconvenience of stovaine. *Archivos de Oftalmología Hispano-Americanos*, Julis, 1906.
- (11) Standish, Myles.—Silver preparations in conjunctival disease. *Ophthalmic Record*, August, 1906.
- (12) Bailliart.—The use of pilocarpine in ophthalmology. (*L'emploi de la pilocarpine en ophtalmologie.*) *Bull. gén. de Therapeutique*, 15 septembre, 1906.
- (13) Roemer.—Bier's hyperæmia treatment in affections of the eye. *Wiener med. Wochenschr.*, April 21, 1906, and *Ophthalmology*, October, 1906.

(1) Baudet claims to have cured a slight form of keratitis by the high frequency current. G. F. ROCHAT.

(2) Koster uses tablets of homatropine, which are said to possess some advantages over Burroughs Wellcome's product. For instance, they dissolve much more readily in the secretion of the conjunctival sac. They are compounded with starch, and can be kept without change for at least three years.

G. F. ROCHAT.

(3) Koster has treated inflammations of the eye with chlorate of potassium, since the medicament is so frequently used in inflammations of the mouth and the throat. In a 3%-5% solution the drug does not cause any disagreeable sensation, when dropped into the conjunctiva. Its use recommends itself in all kinds of conjunctival inflammations, but especially in chronic conjunctivitis, with sensations of dryness, itching in the eye, and by formation of a foam-like secretion in the angles. Bacteriological experiments showed that the medicament acts as a weak disinfectant, and inhibits the growth of all kinds of bacteria of the conjunctiva, except staphylococci.

G. F. ROCHAT.

(4) Spéville's two methods of curing blepharospasm (facial hemispasm) both consist in causing paralysis of the facial nerve. In one case, this was done by injecting 1 c.c. of 80 % alcohol into the region of the point of emergence of the nerve. In the other, Abadie's method was employed. This consists in section of the facial and the implantation of its peripheral end on to the external branch of the spinal nerve. The latter method caused some interference with the functions of the muscles of the arm, and associated movement between the arm and the face.

ERNEST THOMSON.

(5) The purpose of Scholtz's experiments was to ascertain the toxicity of jequiritol, and to determine the extent of the protection, if any, conferred on the organism by jequiritol serum. A concentrated solution of Jequiritol (Jequ. IV Merck) was used in the investigation, and it was found that, of this, the minimum lethal dose for white mice was .00003 grm., which, again, was neutralised and rendered innocuous by .0006 grm. of the serum. The experiments showed that jequiritol had a definite toxic effect which could be accurately gauged, whilst, on the other hand, the serum offered protection of no mean order. Scholtz also observed that jequiritol ophthalmia was beneficially influenced in its course by subcutaneous injections of the serum, the good effect being the more evident the earlier the serum had been administered.

PERCIVAL J. HAY.

(6) In this somewhat extended paper Santon gives a full account of the intravenous injection of salicylate of soda as a routine method of treating rheumatic iritis, scleritis, and keratitis. The method is said to be more active, more rapid, more lasting and less injurious in the matter of digestive trouble, deafness, etc., than oral administration. The only contraindications appeared to be albuminuria and pregnancy. Santon uses the following solution, *viz.*, salicylate of soda, 5 grammes; cafein, 50 centigrammes; sterilized water, 25 grammes. He gives about 60 centigrammes of salicylate per day.

ERNEST THOMSON.

(7) Gasparrini's patient had noticed gradual increasing exophthalmos and diplopia for about a month; the disease had come on without known cause. Clinical examination revealed a pulsation synchronous with the radial, and a *bruit* which disappeared when the carotid of the same side was compressed. The patient was ordered small doses of iodide of potassium and instillations of adrenalin. In a few days there was noticeable improvement, and in about two months the symptoms had disappeared.

HAROLD GRIMSDALE.

(8) Normal persons, subjected to congestion-hyperæmia by means of a rubber band around the neck, experience, after several hours, a feeling of tension and pressure in the ocular muscles, especially when the eyes are turned far in one direction or another. The nasal passages also feel swollen, and the palpebral conjunctiva, and, to a less extent, the ocular conjunctiva becomes red. Visual acuity, field of vision for white and for colours, accommodation and convergence, and tension (despite distinct hyperæmia of the retinal veins) remain unchanged. The method was applied in the case of young subjects whose eyes were internally normal but externally diseased. Five cases of simple keratitis diffusa were considerably improved by a congestion of 6 to 12

hours daily for the space of 2 to 4 weeks. *Ulcus serpens*, although it ran its course quickly and favourably, was not appreciably influenced. The ciliary pains, however, were abrogated under the congestion method. Eczematous and catarrhal ulcers, as well as older ulcers (non-vascular), were not remarkably affected. Neither the eye nor the general health suffered under the Bier treatment.

S. S.

(9) In this paper Verderau gives some further cases, in which the use of subconjunctival injections of iodide of potassium has been followed by regression of lenticular opacities. There are 21 records, all of which show marked improvement. Verderau asks that other surgeons should try the method, which, if it does no good, at least does no harm, and is not very painful.

HAROLD GRIMSDALE.

(10) Fernandez has found stovain specially valuable when given in injection, either subcutaneous or subconjunctival. The vaso-dilating power of stovain renders the risk of syncope less than after the use of cocaine, but Fernandez has met with two patients who were poisoned by the drug. In each there was delirium and slight rise of temperature. Fernandez thinks that by reducing the strength of solution injected, it is possible to prevent intoxication.

HAROLD GRIMSDALE.

(11) Standish, after insisting upon the value of clinical experience as contrasted with laboratory experiment, reports the results obtained with certain preparations of silver in cases of gonorrhœal ophthalmia among the patients admitted to the isolation ward of the Massachusetts Charitable Eye and Ear Infirmary. The cases are divided into two groups:—(1) those of ophthalmia neonatorum, and (2) those of gonorrhœal ophthalmia in adults. In both instances the figures refer only to such patients whose corneæ were unaffected upon reception.
1. *Ophthalmia neonatorum*.—Treated with argyrol, 25% to 50%, 201 cases, with subsequent corneal damage in 2%; with protargol, 150 cases, with subsequent damage 2%; with silver nitrate 50 cases, with corneal damage 6%.
2. *Gonorrhœal ophthalmia*.—In 32 cases treated with protargol there was corneal infection in 34·37%, while in 52 cases treated with argyrol that accident occurred in 34·61%*. Standish gives publicity to a method of applying collyria, as argyrol, to the eye continuously, devised by E. G. Hussey, of the Massachusetts Eye Infirmary. After the skin in the neighbourhood of the eye has been washed with alcohol, a kind of dam around the eye is constructed with painter's putty, and the argyrol is poured

*The figures given in the abstract do not tally exactly with those contained in the original communication, into which several clerical blunders have apparently crept.—S. S.

into this receptacle. Standish concludes his communication with the following words.—“ My conclusions are that the results above shown establish the fact that the modern silver preparations are efficient in the control of gonorrhœal infection of the conjunctiva, and that they have greater bactericidal properties in this disease than the laboratory experiments upon other micro-organisms would lead us to expect.”

S. S.

(12) **Bailliart** after discussing the local use of pilocarpine in cases of chronic glaucoma, describes with some enthusiasm its general action in diseases of the eye. It was first used in this way in the year 1875 by Abadie. Bailliart strongly advocates the hypodermic injection of pilocarpine in certain ocular affections, such as exudative choroiditis, detachment of the retina, vitreous opacities, retinal haemorrhages, progressive myopia, interstitial keratitis, and toxic amblyopia. He claims, indeed, that by the use of pilocarpine all affections of the deeper membranes of the eye, accompanied by exudation or by infiltration, may be rapidly improved. He employs a solution containing 0 gr. 20 of the nitrate salt to 10 gr. of distilled water, and of this liquid injects to begin with six or eight drops, an amount later increased to ten drops (a centigramme of pilocarpine.) The author details the precautions that should be adopted in making the injections.

S. S.

(13) The experiment was first made of tying an elastic band around the neck of a healthy person for from three to eight hours daily. The only result noted was a reddening of the conjunctiva. This method was then tried in young persons suffering from visible affections only of the eye, without internal complications. The results were gratifying in cases of interstitial keratitis. In five cases where such congestion was employed for from six to twelve hours daily, a decided improvement was noticed after from two to four weeks. Very little improvement, however, was noted in *ulcus serpens* and other forms of corneal ulcer, as well as in old opacities of the cornea. In none of the patients was this treatment followed by any injurious effects upon the eye or the general system.

J. G.

REVIEWS.

The Royal London Ophthalmic Hospital Reports. Edited by WILLIAM LANG, F.R.C.S. Volume XVI, part 4, June, 1906. London: J. & A. Churchill, 7, Great Marlborough Street. Price 5s. net.

This volume of the Royal London Ophthalmic Hospital Reports contains articles by Nettleship, Parsons, Usher and Fraser,

Hancock, Coats, Mayou, and Hepburn. They will be abstracted in due course in the columns of THE OPHTHALMOSCOPE. The volume, one may note, is illustrated more liberally than usual. An inset sheet inviting subscribers calls attention to the fact that the *Reports* was founded in the year 1857, and was the first English journal devoted exclusively to ophthalmology.

The Extra Pharmacopœia of Martindale and Westcott.

Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B., D.P.H. Twelfth edition. London: H. K. Lewis, 136, Gower Street, W.C. 1906. 10s. net.

The twelfth edition of that wonderful compendium the *Extra Pharmacopœia* has reached us. It is a marvel of concentrated and accurate information not only about drugs, but also about a variety of subjects of interest to the medical man, as antitoxins, organotherapy, mineral waters, tests for urine, blood, etc. It is, however, unnecessary to say anything about this well-known compilation, except to venture the trite remark that it is simply indispensable to any up-to-date ophthalmic surgeon. For that matter nobody, engaged in the active pursuit of the medical profession, can afford to be without the book.

Die augenärzlichen Heilmittel. (Eye Remedies.) Von H. SNELLEN, Jun., Professor in Utrecht. Leipzig: Verlag von Wilhelm Engelmann. 1905.

This section of the new Graefe-Saemisch *Handbuch der Gesamten Augenheilkunde* is by Professor H. Snellen, Jun., and deals with eye remedies. It is published as a separate volume of 75 pages. A straightforward and simple account is given of antiseptics, astringents, stimulants, mydriatics, myotics, and sections are added on the disinfection of hands and of instruments. The chapters on anaesthetics and analgesics are contributed by Dr. A. Lürman, of Bremen. We miss any reference to the newer agents, especially x-rays, organo-therapy, and serum treatment. The brochure abounds in references.

**Des Nouveaux Sels d'Argent en Thérapeutique Oculaire.
(The New Salts of Silver in Ocular Therapeutics.)**
Par le Dr. A. DARIER. Paris: 9, Rue Buffault. 1906.
Price, 3 francs.

The indefatigable Dr. Darier, the author of the widely-known *Leçons de Thérapeutique Oculaire*, has written a brochure of some eighty pages upon the newer salts of silver in ophthalmic

practice. His standpoint is essentially clinical, as opposed to that of the bacteriological laboratory, a thing to be rather thankful for than otherwise nowadays. That ancient favourite, the nitrate of silver, has for some years, in Darier's work, been replaced by the modern organic compounds of silver, more especially protargol and argyrol. The pamphlet before us describes, in an interesting and convincing way, the steps which led the author to take up this final position. Darier, of course, recognises the sterling qualities of the nitrate in the treatment of superficial affections of the eye, but he insists (and we think with justice) upon the difficulties, dangers, and pain that are liable to attend its use in ordinary out-patient work, especially when it is applied by those who have not gained the experience necessary to manage it to the best advantage. The bactericidal properties of the salt are due, Darier thinks, to the silver base, whilst its irritating and caustic qualities are connected with the combined acid, set free by the combination of the silver with the albumins of the conjunctiva. After numerous experiments with argentamin, argonin, largin, itrol, and actol, Darier has reached the definite conclusion that protargol and argyrol are the best two compounds to employ. As drops for the patient to use at home, he advises a 5% solution of protargol, and for direct application by the surgeon a 25% solution. As regards argyrol, a 5% solution is recommended for home use, and a 10% to 20% solution in serious cases, such as purulent ophthalmia. Solutions of both salts should be freshly made with cold water. It is a pleasure to read so enthusiastic a book as the one before us. It makes one realise that, after all, the aim of the surgeon is to cure his patient, and it gives, besides, valuable hints as to how that is to be accomplished in the class of case of which Dr. Darier treats.

The combined Treatment in Diseases of the Eye. By G. HERBERT BURNHAM, Professor of Ophthalmology and Otology in the University of Toronto, etc. London: H. K. Lewis, 136, Gower Street, W.C. 1906. Pp. 92. Price 3s.

It is a little difficult to know what to say of this book, in which Dr. Burnham advocates the treatment of practically every disease of the eye by what he calls the "combined treatment"—that is to say, by the hypodermic injection of pilocarpine, together with the internal administration of potassium iodide and mercury. Indeed, he goes farther, and hints that similar treatment is applicable not only to affections of the eye but also to diseased conditions of the body generally. Dr. Burnham's recommendations, however, are the outcome of sixteen years' experience. They are therefore worthy of serious

and careful consideration. The details of the plan, upon which the author lays great stress, are as follows.—The patient, clad in ordinary under-clothes, lies in bed in the blankets in a room, the temperature of which is from 65° F. to 75° F., and from which draughts are carefully excluded. The blankets are tucked in, especially along the spine, and a hot water bottle is placed at the patient's feet. Alcohol is not given. One-twelfth to one-half grain of pilocarpine is injected into the forearm, and the writer prefers a solution containing grs. v. to the drachm, mainly because with so small a quantity of liquid many injections can be made without giving rise to any particular soreness or induration of the parts. The patient remains in bed until perspiration ceases, which is usually in from 1½ to 2 hours. He is then dried with a warm towel and allowed to go about the house. The first series of injections ranges in number from 10 to 21, given (we understand) daily. After an interval of two to four weeks, seven to ten additional injections are made. "This series is then adhered to and kept up with intervals varying from four to eight weeks. Eight weeks is the longest interval that can, with safety, be allowed between the series. If this limit be exceeded, though there may be no relapse or loss, still there is no further improvement." With regard to mercury, Burnham gives that remedy as a powder, pill, or capsule, three times a day, containing mercury with chalk, gr. i., and powdered opium and powdered ipecacuanha, of each gr. $\frac{1}{10}$. The potassium iodide (combined with grs. v. of potassium bromide) is given in doses of v to xv grains, three times a day, after food. But the doses both of mercury and of iodide are reduced (or sometimes altogether omitted) during the period of injections, and resumed as soon as the latter are completed.

Festschrift zum 25 jährigen Professoren: Jubiläum von Hermann Kuhnt. Supplement to Vol. XVI. of the *Zeitschrift für Augenheilkunde*, 1906.

Professor Kuhnt is to be warmly congratulated upon the work contained in the contributions to this volume. Richard Hoffmann leads the way with a paper on "Inflammatory Affections of the Orbit and Eye following Purulent Inflammations of the Accessory Sinuses." One would almost be disappointed not to find a study of the relations between the orbit and the surrounding parts. Apart from the fact that Kuhnt himself has been a pioneer in this direction, the subject is "in the air," if we may use the expression. Hoffmann does not present his readers with anything new, but some of his cases are of interest. The next paper is by Helmbold, who describes an ingenious instru-

ment for estimating the interpupillary distance. Krüdener writes on amblyopia arising from poisoning with atoxyl, methylalkohol, carbon bisulphide, and Felix Masaud gives examples of each. The case of atoxyl poisoning derives a special interest from the fact that the number of anilin derivatives and their compounds is daily on the increase, so that ophthalmic surgeons are likely to meet with similar cases more and more frequently. It may be noted that the patient became quite blind in one eye in three weeks, and almost so ($V. = \frac{1}{15}$) in the other eye four weeks after the appearance of the first symptoms. Küsel discusses the development of the canaliculi; and Schauz relates rather a curious instance of purulent metastasis. The patient hit his head against a door. Three days afterwards a large abscess formed at the seat of injury, over the right temple, and four weeks later purulent iritis set in in the left eye. In both lesions the pathogenic organism was the staphylococcus pyogenes aureus. The same author contributes a short clinical paper on collargol. Heinrich Schmidt follows with an article dealing largely with Mules' operation. In order that the prosthesis may be retained as long as possible, he says that it should consist of a substance, that can be easily sterilised, that will not be absorbed, and that is not altogether foreign to the body. He recommends balls of calcined bone, as meeting these requirements best. A contribution by Schrader concerns an abnormal vascular arrangement around the optic disc showing obliterative endarteritis and secondary choroidal atrophy. The best and most interesting paper is a valuable one by Hugo Wolf on the physical, physiological, and geometrical optics of skiascopy and ophthalmoscopy. It deserves to be read in the original. The author discusses first of all the physical phenomena associated with skiascopy. He shows that the point where the "shadow" becomes indistinct coincides with the disappearance of all light from out of the optical system, and demonstrates further how the various phases in skiascopic examination depend upon fundamental changes in the field of vision and in the illumination. Particular reference is made to the quantity upon which the reversal of the shadow depends. The bearings of these phenomena upon spherical aberration and astigmatism with oblique axes are discussed, as also the mathematical aspects of the reversal of the shadow and the nature of the skiascopic image. The article is a long one, and refers, perhaps, to questions with which the ophthalmic surgeon does not often occupy himself, but it will repay a careful perusal. Ziegenspeck closes the list of contributions with a note on a case of detachment of the retina due to a so-called preclimacteric haemorrhage.

P. J. H.

De l'Emploi des Alcaloïdes en Solution Huileuse. Par le DOCTEUR SCRINI. (**On the employment of alkaloids in oily solution.**) Paris: Vigot Frères, 23, Place de l'École-de-Médecine. 1906. Price 2 francs 50 centimes.

Dr. Scrini is known to ophthalmic surgeons, not only as the *chef de clinique ophtalmologique* of the Faculty of Paris, but also as an authoritative writer on ocular therapeutics. His present book is devoted to advocating the advantages of oily solutions of the various alkaloids employed in eye work. He lays much stress upon the drawbacks of aqueous solutions, which are said to provoke lacrymation and blepharospasm. He is on sounder ground, we think, when he impugns those liquids on the score of their chemical instability and their tendency to develop micro-organisms and fungi. Various means have been devised to remedy these disadvantages, including sterilisation of the liquids by boiling or by the addition of antiseptics, or by replacing the salts in common use by others possessing antiseptic properties. It has been proposed to substitute watery collyria by ointments, or by glycerine, either alone or mixed with starch under the form of a glycerole. Particles of paper (Streatfield) or of gelatine (Hart) impregnated with the alkaloids have been tried and abandoned. The introduction of vaseline marked a forward step, and the new agent was speedily pressed into the service of ophthalmology, in this country, more especially by Lawson, in America by Seely, and in France by Galezowski, Chibret, and Panas. Dr. Scrini recalls the fact that oil was employed in the treatment of eye diseases by Antoine Maitre Jean in 1707, by Marc-Antoine Petit in 1815, and by Scarpa in 1821. In more recent times the use of oil has been advocated chiefly by British and American surgeons. Lloyd-Owen, of Birmingham, was a pioneer in this direction, since in 1873 (*British Medical Journal*, 1873, II, p.536) he advocated the use of atropised castor oil in the treatment of certain corneal affections. A couple of years later, Green, of St. Louis, suggested that the alkaloid and not its salt be adopted in using oily solutions. Andrews ten years later expressed his preference for olive oil as a menstruum for dissolving cocaine and atropine. Dr. Scrini's experiments on animals and man lead him to the conclusion that the action of some oils upon the eye is just as irritating as that of others is the reverse. The non-irritating oils are olive oil, oil of vaseline, and nut oil* (*huile d'arachide*); the others include almond oil, neats-foot oil, and, to a less extent, castor oil. Oil of vaseline, although otherwise

* Dr. W. H. Martindale, in answer to our enquiries, informs us that by "nut oil" is usually understood pea-nut oil, as mentioned in the *Extra Pharmacopœia*, p. xxvii, although commercially other oils may be sold under that designation.—
EDITORS.

a good vehicle, has but a feeble power of dissolving the basic alkaloids, a fact that causes Dr. Scrini to employ in practice either olive or nut oil. The oil is sterilised by Delacourt's plan, which consists in washing the oil for several days with 95% alcohol, decanting it, and heating it for ten minutes in a sand-bath to a temperature of 120°. Details are given regarding the best ways of preparing the solutions and the solubilities of the various alkaloids. It may be stated that the alkaloids themselves are used, and that they are dissolved in the menstruum in a water bath. Amongst the manifold advantages of oily collyria Dr. Scrini enumerates their facility of application and their remarkable tolerance by the eye, their rapid, intense, and prolonged action, their stability, and, last but not least, the fact that they remain aseptic for an indefinite period. We consider that the author has made out an excellent case for a wider employment of oily solutions of the alkaloids used in eye work, more especially, perhaps, of physostigmine. We welcome Dr. Scrini's contribution to the subject.

The Eye and the Nervous System. Their diagnostic relations by various authors. Edited by WM. CAMPBELL POSEY and WM. G. SPILLER. (Lippincott Co., Philadelphia and London.) 25s. net.

We may begin a review of this work by cordially expressing the pleasure with which we greet its appearance. It is unquestionably a work that was greatly needed. In spite of the paramount importance to both the ophthalmologist and the neurologist of a detailed knowledge of the relations of their respective departments of internal medicine to each other, and of the ground common to both, it has hitherto been impossible to acquire more than a superficial part of this knowledge without the expenditure of a vast amount of labour. In English there is no work that attempts to collate the extensive researches that have been made, particularly of late years, in this province of medicine, and even in German there is no work of this size extending over exactly the same ground. For instance, Wilbrand & Saenger's *Die Neurologie des Auges*, perhaps the greatest classic of the kind, approaches the subject from a rather different standpoint, one nearer to that of the ophthalmologist alone. It is manifest, therefore, that a book of this sort would be welcome were it written with only average capacity. Professors Posey and Spiller have gone further however than this. In the care they have given to the general arrangement of the book and to the choice of eminent collaborators, they have shewn such thought and judgment that the result has been the production of what must immediately take rank as a standard work in medicine.

The book is built in twenty-three chapters. After a first chapter on the anatomy of the cranial nerves, the next seven deal with the eye, vision, the retina, and the nerves that relate to the eye. This part might have formed a separate section of the book, as the remaining fifteen chapters are concerned directly with neurology. This early part treats its subject in rather a different way from the later part, inasmuch as necessarily it has to do rather with methods of examination and with the significance of various symptoms. The later part of the book, on the contrary, may be said to treat of its subjects from three points of view, and in most of its chapters there are indications that the writers are fully conscious of that fact. First, in the various affections of the nervous system, the ocular complications have, of course, to be described in detail; secondly, a brief, though adequate, account of the other symptoms of the affection is presented, so that the ophthalmologist is enabled to diagnose, or at least to suspect, the presence of the condition in question; thirdly, an amount of common ground has to be gone over, covering such varied topics as ocular vertigo, Graves' disease—which, by the way, we regret to see still described as exophthalmic goitre—mental disturbances after eye operations, etc. One is surprised to find the neurological side dealt with so fully: for instance, there is a chapter of 44 pages solely on tremors, reflexes, and gaits. The result of this is to make the book more particularly valuable to the ophthalmologist who is specially interested in the neurological aspect of his branch of study than to the neurologist. Frazier adds a chapter on the surgical treatment of intracranial lesions causing disturbance of vision. Eleven pages of this deal with trifacial neuralgia, the operations for which are described fully, with a detailed exposition of *technique*; it is unfortunate that no reference is made to the work that has been done in England on this subject, for in the hands of certain operators the mortality reaches nowhere near the 12 per cent. here mentioned. The criticism might be added that the whole topic is out of place in such a book, and the more justly in that its relation to ophthalmology is dismissed in four lines.

As always the case with a work that is the product of many writers, the different sections impress one as not being of equal value, although a very high standard is maintained throughout. Perhaps the most notable are: Chapter III on the Psychology of the Visual Act and the Focal Diseases of the Visual Cortex, by C. K. Mills—here the word psychology is used quite improperly instead of the word physiology; Chapter V on the Extra-ocular Muscles, by Duane; Chapter IX on Tumours and other Lesions of the Brain, by Spiller; Chapter X on Bulbar Diseases, by

Taylor; Chapter XII on Parasyphilitic Affections, by Dercum; Chapter XVI on Neuroses and Psychoses, by de Schweinitz; Chapter XX on the Psychological Effects of Operations on the Eyes, by Posey; and Chapter XXII on Tremors, Reflexes, and Gaits, by Sailer. The ocular signs of Graves' disease are described by Posey with an admirable completeness, but his account of the pathology of the disease has little that is modern in it, while in his otherwise full account of the treatment he astonishes one by not even mentioning Moebius' thyroidectin, on which such considerable researches have been made in the past few years. Mills, in describing in detail the work of Mott, Campbell, and others on the histology of the visual cortex, does not refer to J. S. Bolton's researches, which are amongst the most complete that have yet been made on the subject. In the course of 17 pages on word-blindness he makes no reference to the increasingly important and interesting subject of congenital word-blindness; this is the stranger since he quotes extensively from Hinshelwood, who was one of the first to recognise this condition. Sailer writes 22 pages on reflexes, but in the section on the lower limb mentions only Remak's and Babinski's besides the knee jerk; this is one of the most important omissions in the whole book. Within the past three years a number of reflexes have been described, such as Oppenheim's, Bechterew's, Kurt Mendel's, Schäfer and Laserew's, etc., that bid fair to rival in importance those mentioned. There are in the book a number of lesser omissions that, no doubt, will be remedied in the next edition.

The general arrangement is excellent, although here and there further suggestions may be allowable. For instance, it is not easy to see why Friedreich's disease should be grouped with arterio-sclerosis and paralysis agitans rather than with the other diseases of the spinal cord. The account given of that disease is very sketchy indeed; one is astonished to find such a rare complication as optic neuritis referred to, while no mention is made of the important one of optic atrophy which Marie regards as being so valuable in helping to differentiate the cerebellar (Nonne-Sanger Brown) type from the spinal.

One is disappointed not to find a short introductory chapter, dealing in a broad general way, with the relation of ophthalmology to neurology. It has become no one's duty therefore to call special attention to such matters as the circumstances under which ocular symptoms may be mistaken for a disease and treatment directed only locally. Even when the diagnosis is made, as, for instance, in the case of an hysterical manifestation, the importance of general treatment is often overlooked, and the transference of an eye symptom to an unrecognised mental

symptom may be looked upon by the ophthalmologist as a cure of the disease, with grave consequences to the patient.

The illustrations form one of the most prominent and excellent features of the volume. They could hardly be bettered. The make-up of the book, including the proof revision, is as admirable throughout as we have come to expect from American publishers.

In conclusion, we can simply record the opinion that this volume is indispensable to every neurologist and ophthalmologist who aims at keeping in sight of the frontier of his science.

ERNEST JONES.

NOTES AND ECHOES.

Appointments. MR. George Coats, pathologist to the Moor-fields Hospital, a contribution from whose pen will be found in the present number of

THE OPHTHALMOSCOPE, has been appointed ophthalmic surgeon at the Great Northern Central Hospital; and Mr. A. H. P. Dawnay, ophthalmic surgeon to the Hounslow Hospital. Dr. Frank Vinsonhaler has been appointed professor of ophthalmology in the medical department of the University of Arkansas; and Dr. N. A. Young, assistant surgeon to the Illinois Eye and Ear Infirmary. Dr. W. T. Shoemaker, of Philadelphia, will succeed Dr. James Moores Ball as Editor of the *Annals of Ophthalmology*. Dr. O. Fehr, for several years assistant in Professor Hirschberg's *Augenheilanstalt* and a well-known contributor to the pages of the *Centralblatt für praktische Augenheilkunde*, has been appointed director of the eye department of the Rudolf Virchow-Krankenhause of the City of Berlin. Our contributor, Dr. Darier, of Paris, has been charged by M. Clemenceau, the French Minister of the Interior, with a mission in Germany, for the purpose of studying the hygiene of sight in schools, and also of reporting upon the organisation of the different eye clinics.

* * * *

Obituary. DEATH has been busy in our ranks of late. Mr. W. Spencer Watson died on September 17th, at 44, Chepstow Place, London, W., at

the age of 70 years. Mr. Watson (the son of a London practitioner) was one of the few remaining surgeons who combined the two specialities of ophthalmology and laryngology, and he distinguished himself in both. He had been surgeon to the Royal Eye Hospital, Southwark, to the Central London Ophthalmic Hospital, and to the throat department of the Great Northern Hospital. Until some years ago, when he retired from active

professional work, Mr. Watson was a frequent attendant at the meetings of the Ophthalmological Society, of which he was an original member. He served upon the Council of the Society from 1883 to 1886. He was the author of several important books and monographs, including one on *The Anatomy and Diseases of the Lacrymal Passages* (1892), *Atscess and Tumours of the Orbit, and Keratitis* (1864). It is sad to remember his last years were clouded by total blindness, the result of an operation for cataract. Dr. William Brandegee, senior assistant surgeon to the New York Eye and Ear Infirmary, died from cerebral haemorrhage at the early age of 42 years. Wilhelm Czermak succumbed to apoplexy at Innsbruck on September 8th last. He was born at Brünn on October 12th, 1856. He studied at Gratz, and then became a pupil of Stellwag in Vienna. From 1883 to 1887 he acted as assistant in the Augenklinik in Gratz, and from 1887 to 1892 was assistant to Fuchs in Vienna. Czermak was the author of *Die Augenärztlichen Operationen* (1893), and of numerous communications upon ophthalmological subjects. Last, but not least, we regret to have to report the death, at the age of 68 years, of Herman Cohn, professor of ophthalmology in the University of Breslau, an appointment that he had held for thirty-two years. He was a voluminous writer on ophthalmological subjects. His best known work, *Hygiene of the Eye*, was translated into English by Turnbull in 1886, and may be said to have formed the basis of practically all the subsequent work upon the subject of school hygiene. Another great statistical work, published by Cohn in 1896, dealt with the prevention of ophthalmia in newly-born children (*Ueber Verbreitung und Verhütung der Augeneiterung der Neugeborenen*).

Prizes.

THE Imperial Hungarian Minister of the Interior announces, through Professor Dr.

Emil v. Grosz, the commissioner for trachoma,

a prize of one thousand crowns for the best essay on the etiology of trachoma. The essays, which must be in English, French, German, or Hungarian, must be received by the Belügyministerium, I, Var, Budapest, Hungary, not later than December 31st, 1908. The decision of the judges (to be selected by the Minister of the Interior) will be announced in September, 1909, on the occasion of the assemblage of the Medical Congress at Pesth. It is announced by the British Medical Association that the Middlemore Prize, consisting of a cheque for £50 and an illuminated certificate, will be awarded next year. The subject chosen is "Ophthalmia Neonatorum, with especial reference to its causation and prevention." Essays should be

sent to the General Secretary of the Association, and be received by him not later than April 30th, 1907. The adjudicators will report to the Council of the Association on July 3rd, and the prize will be presented to the successful essayist at the annual meeting of the Association, to be held at Exeter, July 30th to August 2nd, 1907.

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**The Municipal
Treatment of
Trachoma.**

As anticipated some years ago by those in a position to know the facts, considerable difficulty has been experienced by the Metropolitan Asylums Board in filling their

two special poor-law schools for ophthalmic children, situated one at Swanley and the other at Brentwood. The dearth of applicants has induced the Local Government Board to issue a circular letter to the guardian bodies of London calling attention to the "apparent" want of appreciation of the schools in question. The circular states that, seeing the institutions have been provided, it is obviously in the interests of diseased children that they should be sent to them. An argument much more likely to appeal to the recalcitrant and cheeseparing Boards is also adduced, namely, that although under the Metropolitan Poor Act, 1867 (section 32), the expense of maintenance of any child sent by a Board of Guardians to one of these institutions is charged to the poor law union that sends the child, yet under the Metropolitan Poor Amendment Act, 1870 (section 69), the Guardians are entitled to be repaid this expense from the Common Poor Fund. As pointed out before in these columns, the machinery for isolating and curing trachoma among the poor-law population has now been provided, but a fatal flaw exists, inasmuch as there is no systematic method of detecting the disease among the children in the various schools. This defect can be remedied only by the inspection at regular intervals of every inmate of the London poor-law schools, district and separate. Moreover, when such disease has been detected means must be devised to compel the guardians to avail themselves of the advantages of the isolation provided by the Asylums Board. It is simply a public scandal that vast sums of money should be spent in building, equipping, and staffing the ophthalmic institutions of the Asylums Board, and that the guardians should not be compelled to send diseased children to those places. Instead, it is in many instances to be feared that the children are not only allowed to go untreated, to the manifest danger of their eyesight, but, even worse, are permitted to sow the seeds of an infective and dangerous and painful disease broadcast among the other children. It is in this way that ratepayers' burdens are recklessly manufactured by certain guardian bodies of the metropolis.

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BRITISH MEDICAL ASSOCIATION.

MIDDLEMORE PRIZE, 1907.

The Middlemore Prize, which consists of a cheque for £50 and an Illuminated Certificate, was founded by the late Mr. Richard Middlemore, F.R.C.S., of Birmingham, for the best Essay or Work on any subject which the Council of the British Medical Association may from time to time select in any department of Ophthalmic Medicine or Surgery.

The Council of the British Medical Association now invites Essays on the subject of "Ophthalmia Neonatorum, with especial reference to its Causation and Prevention." Essays should be forwarded to the General Secretary, marked "Middlemore Prize Essay," so as to be received by him not later than April 30th, 1907.

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420, Strand, London, W.C.

GUY ELLIOTON, General Secretary.

*Reprinted from the New York Medical Journal
for July 27, 1901.*

THE OPHTHALMOSCOPIC EXAMINA-
TION FOR KIDNEY DISEASE.*
BY EDWARD JACKSON, A. M., M. D.

OPHTHALMOLOGIST TO THE ARAPAHOE COUNTY HOSPITAL,
DENVER, COLORADO.

In cases of renal disease the ophthalmoscopic examination follows closely in importance the clinical and microscopical examinations of the urine. Noticeable changes are found in fifty per cent. of such cases; and distinct albuminuric retinitis occurs in not less than ten per cent. In these latter cases the ophthalmoscopic appearances are easily recognized, are as pathognomonic of the general disease as any set of symptoms known in medicine, and have the most definite prognostic significance. Of the men showing this symptom in Haab's Clinic, all died within two years. Belt, in 419 collected cases, found that seventy-two per cent. were dead at the end of the first year, and ninety per cent. at the end of

*Read before the Colorado State Medical Society, June 19, 1901.
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OPHTHALMOSCOPE.
A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

VOL. IV.—No. 12].

DECEMBER 1, 1906.

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ORIGINAL COMMUNICATIONS

**ON THE FREQUENCY AND CLINICAL VARIETIES
OF OPAQUE NERVE-FIBRES OF THE RETINA.**

BY
SYDNEY STEPHENSON,
LONDON, ENGLAND.

There is perhaps no congenital anomaly* of the fundus oculi that presents more striking and characteristic ophthalmoscopic appearances than so-called opaque or medullated nerve-fibres of the retina. The glistening, brush-like processes, of a beautiful

*The expression "congenital anomaly" perhaps calls for some modification in view of a recent paper by von Hippel (*v. Graefe's Archiv für Ophthalmologie*, Bd. XLIX, 3, p. 591). The writer maintains that opaque nerve-fibres are not a congenital anomaly, since at birth the optic nerve contains no medullated fibres, which do not indeed reach their full development until the ninth or tenth week of extra-uterine life. v. Hippel further points out that in animals whose eyes normally possess opaque nerve-fibres—e.g., the rabbit—the appearance does not develop until 2½ to 3 weeks after birth.

white hue, radiating from the optic disc into the neighbouring fundus, form a picture that once seen is not readily forgotten or mistaken for anything else. The condition is constant in the eye of the rabbit and of the Tasmanian Devil. It is, however, assuredly not a common anomaly in man, although estimates as to its actual frequency differ. For example, they range from 0·4 per cent. (Mayerweg) or 0·65 per cent. (Wollenborg) to 0·03 per cent. (Manz).

It so happens that I am in possession of precise figures with regard to this point. They may be summarised as follows :—

In a first series of cases, 744 children, whose ages ranged from a few months to sixteen years, were examined ophthalmoscopically, and opaque nerve-fibres were found to be present in four—that is to say, in 0·52 per cent. of the total number. Among the male children, who numbered 453, three cases were found—0·66 per cent.; among the female children, who numbered 291, one case was alone found—0·34 per cent. The anomaly affected the right eye twice, the left eye once, and was present in both eyes once.

In a second series of cases the numbers were considerably larger, since 3,468 children were examined, *viz.*, males 1,872, and females 1,596. Twenty-five instances of opaque nerve-fibres were noted, or a proportion of 0·72 per cent. Among the 1,872 male children, the anomaly was present in 0·90 per cent., whereas among the 1,596 female children the proportion was 0·501 per cent. The condition was unilateral in 18 instances (R.E., 7 and L.E., 11), and bilateral in 7 instances.

By adding the two series together, we find that medullated nerve-fibres were present in 29 cases amongst 4,212 children, or, in other words, in 0·68 per cent., a figure that agrees closely with Wollenborg's estimate quoted above, namely, 0·65 per cent. It is interesting to observe that the proportion among the 2,325 male children was 0·86 per cent. as compared with 0·47 among the 1,887 female children. For purposes of comparison it should perhaps be stated that of the total number of children examined (4,212) males formed 55·19 per cent. and females 45·80 per cent. The figures dealt with are large enough to exclude any serious statistical fallacy. It may be concluded, therefore, that there is a real preponderance of opaque nerve-fibres among male children.

The two outstanding features brought into prominence by this statistical enquiry are : first, that opaque nerve-fibres occur about six times among every thousand children; and, secondly, that, roughly speaking, they are twice as common in males as in females.

The anomaly was much commoner in one eye than in both,

since of the total number of cases (29) met with, 72·41 per cent. were unilateral, and only 27·58 per cent. bilateral. The right eye was affected in nine instances (31·03 per cent.), and the left eye in twelve instances (41·37 per cent.) It seems probable that the difference between the two eyes brought out by the figures is merely fortuitous.

The clinical appearances presented by the opaque nerve-fibres in 37 eyes may be described as under:

In 22 instances the nerve-fibres assumed the common form of one or more brilliantly white, comet-like processes extending for a longer or shorter distance into the fundus from the upper (7) or the lower (5) margin, or from both upper and lower margin (10) of the disc, but without involving the last-named structure itself. The brush-like processes had an inclination to the nasal side in three, and to the temporal side in three instances.

In eight eyes the optic disc was more or less surrounded by the glistening masses, the process being complete in four, and the nasal side and the temporal side respectively being spared in two cases. In opaque nerve-fibres of this type it was noted as an almost invariable concomitant that the optic disc assumed a dark-brown or plum-coloured aspect, contrasting markedly with the normal pink colour of health. In one bilateral case where the opaque nerve-fibres surrounded each optic disc, in one eye they encroached upon and concealed about one-third of the surface of that structure. Yet one of our most trustworthy text-books (Nettleship's *Diseases of the Eye*, sixth edition, 1897, p. 203), in describing opaque nerve-fibres, states that "the medullary sheath of the optic nerve-fibres, which should cease at the lamina cribrosa, is continued through the disc into the retina" (*sic*). The truth appears to be that any participation of the disc itself in the ophthalmoscopic appearances of opaque nerve-fibres is one of the rarest events.*

It is of interest to note that in four eyes the rare condition known as "eccentric nerve-fibres"—*i.e.*, areas of medullated

*The histological investigations of Manz (*Arch. für Augenheilkunde*, XXIX, 3 and 4, p. 221), Usher (*Ophthalmic Review*, 1896, p. 1), Percy Flemming (*Trans. Ophthalmological Society*, vol. XXI, 1901, p. 200), Mayerweg (*Archives of Ophthalmology*, January, 1905), von Michel (*Zeitschrift für Augenheilkunde*, April, 1905), and others, show that the myelin sheath of the optic nerve-fibres ceases abruptly at the level of the lamina cribrosa. In exceptional cases (Manz, Usher, v. Michel) a few fine medullated fibres have been seen to pass through the lamina cribrosa. In cases of opaque nerve-fibres, however, the myelin sheath is regained at the margin of the optic disc, and continued into the retina for a longer or shorter distance from the last-named structure. The medullated fibres are varicose, owing to the existence of small globular or fusiform swellings along their course.

fibres not in connection with the optic papilla—were met with. Caspar found such a condition present four times amongst about 14,000 patients—the very low proportion of 285 per mille (*Archiv für Augenheilkunde*, 1900, 41, p. 195). In the present series four cases amongst 4,212 individuals gives a ratio of one case in 1,053 patients, obviously a much higher figure than that adduced by Caspar. Indeed, the figures at my disposal lead me to surmise that eccentric opaque nerve-fibres are commoner than usually supposed, and nothing like so rare as the condition in which the anomaly involves the superficies of the optic disc itself.

In three of my four cases of eccentric fibres, there was no sign of a similar condition in connection with the optic papilla, while in the fourth case the conditions named co-existed. This effectually disposes of Leber's contention, namely, that isolated detached areas of opaque nerve-fibres occur only in association with medullated fibres attached to the optic disc (Graefe—Saemisch, *Handbuch der gesammten Augenheilkunde*).

I may briefly describe and illustrate these four cases, and I will take the opportunity of adding a fifth case seen recently.

Case No. 1 (already published in *Archiv für Augenheilkunde*, 1896, Bd. 33, p. 100).—A female child, aged 5 years, with 2·5 D. of hypermetropia, presented a patch of opaque nerve-fibres in the left fundus, at a distance of about 5 papilla-diameters from the optic disc. At the point of bifurcation of one of the main retinal veins (as shown by Figure 1) the vessels were more or less



FIG. 1.

embedded in soft-edged, white, glistening material. The affected veins appeared to be somewhat constricted. No change occurred during the ten years the child remained under my observation.

Case No. 2.—A lad, aged 14 years, had 1 D. of hypermetropia in his right eye, and 1·5 D. in his left eye, the corrected vision of each eye being normal. In the right eye there were tufts of

opaque nerve-fibres at the upper and the lower margin of the disc. In the left eye the medullated fibres formed a rounded mass connected with the upper-outer margin of the disc (see Figure 2), while below was a faint trace of a similar condition.



FIG. 2.

The eccentric patch lay alongside the superior nasal vein beginning about 0·5 papilla-diameters from the edge of the disc.

Case No. 3.—In this patient, a lad aged 10 years, the appearances presented points of resemblance to the first case

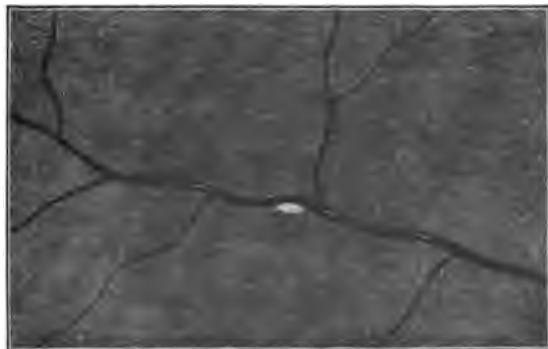


FIG. 3.

The change affected the left eye, and took the form of a delicate white haze lying over and appearing to constrict a limited portion of the superior nasal vein at some distance from the optic disc in the inner hemisphere of the fundus (Figure 3). The sight of the affected eye was reduced to 6/36 by reason of eczematous nebulæ of the cornea.

Case No. 4.—Frank F—, 11 years. R.V. 6/5 $\frac{1}{2}$ and No. 1 Jaeger. L.V. 6/6 and No. 1 Jaeger. Absolute visual acuity 6/5

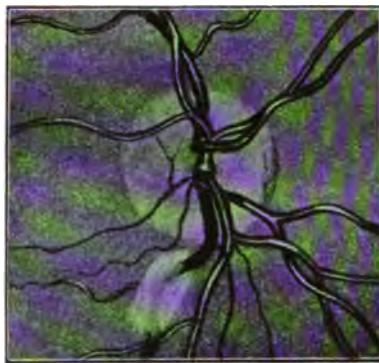


FIG. 4.

with refraction ($\frac{+0.5 \text{ S.}}{+0.5 \text{ C. } 90^\circ}$) corrected. An elongated wisp of opaque nerve-fibres lay near the lower-inner edge of the optic disc in connection with the inferior temporal vein, which was more or less hidden by the change (see Figure 4). A narrow



FIG. 5.

but distinct interval lay between the margin of the papilla and the area of medullated fibres.

Case No. 5.—This case forms the best example of eccentric medullated fibres that I have yet met with. The main facts follow: a man aged 23 years, was seen on February 16th, 1906, complaining of "floaters" before his eyes. R.V. < 6/60

—3·50 6/5. L.V. < 6/60—3·50 6/12. Lying in the lower nasal quadrant of the right fundus, separated from the optic disc by an interval equal in length to about three-quarters of the diameter of the papilla, lay an area of opaque nerve-fibres several times larger than the disc itself (*see Figure 5*). The patch formed a fan-shaped area, with its apex towards the disc and its base spread out towards the lower nasal quadrant of the fundus oculi. It might be described as white, glistening, striated, and having feathery edges. The retinal arteries and veins coming into relation to the area were more or less concealed. The visual field for white, carefully and repeatedly tested with a 4mm. square, showed no defect, although such might *prima facie* have been expected.

Remarks.—It may be said, in conclusion, that the existence of eccentric medullated nerve-fibres has been noted by several writers. The first case of the kind was published by the present writer in 1896.* In the same year W. Adams Frost included the painting of a case (Plate XIV, figure 38) in his *Atlas of the Fundus Oculi*. In addition to the more ordinary form of the anomaly, Frost's patient presented a mass of opaque nerve-fibres separated from the disc by a narrow strip of normal fundus. In 1899 B. A. Randall (*An American Text Book of Diseases of the Eye, Ear, Nose, and Throat*, p. 195) gave an illustration of a small isolated "marrow-sheath" patch lying, unconnected with the optic disc, in the macular region of the eye. In the following year H. Work Dodd (*Trans. Ophthalmological Society*, Vol. XX, 1900, p. 181) described a case in a deaf and dumb girl, aged 13 years. A wisp of opaque nerve-fibres, separated from the inner side of the right optic disc by an appreciable interval, lay alongside and appeared to constrict one of the main retinal vessels. This was followed by a couple of cases by Nettleship in the following year (*Ibidem*, p. 182). In 1900 Caspar described and gave illustrations of four cases of eccentric opaque nerve-fibres, and it is of interest to note in view of my case No. 5, that in none did he find scotomata in the field of vision (*loco citato*). In 1903 Albert Blascheck (*Zeitschrift für Augenheilkunde*, 1903, p. 428) described two cases, and Hermann Ulrich (*Ibidem*, p. 599) a case in which he found this form of opaque nerve-fibre in both eyes of one and the same patient, a woman 52 years of age. The last case with which I am acquainted was published by C. O. Hawthorne two years ago (*THE OPHTHALMOSCOPE*, September, 1904).

*It should be noted that v. Recklinghausen (*Virchow's Archiv*, Bd. XXX, p. 375) in 1874 examined histologically a patch of eccentric nerve-fibres that lay at some distance, about 4mm., from the optic disc. The condition, however, had not been observed with the ophthalmoscope during life.

PERCHLORIDE IRRIGATION OF THE CONJUNCTIVA.

A BACTERIOLOGICAL TEST.

BY

H. HERBERT, F.R.C.S.,

MAJOR I.M.S., BOMBAY, INDIA.

One of the main lessons to be drawn from cataract work in India is that the major operation* may be quite safely performed upon the eye in the presence of slight chronic conjunctivitis. There the conjunctiva is irrigated usually with perchloride lotion immediately before operation, but there is no prolonged preparation of the conjunctiva. Major Elliot, of Madras, is, I believe, the only surgeon of large experience in India who practises systematic preparatory treatment for conjunctivitis, and relies upon simple mechanical cleansing before operation, with good results.

The following table gives the result of a test which I have long intended to make, in order to compare the bacteriological findings with the clinical results obtained by conjunctival irrigation as practised in Bombay immediately before operation. A glance at the table will shew how (in Bombay) the preparation of the field of operation is the most difficult and important of the measures needed for protection of the wounds. Our clinical record may be described as fairly satisfactory. Of late years we have managed to avoid suppurations entirely, but we have rare cases of infective iritis and irido-cyclitis, and there are many threatening appearances—possibly representing mild infections—seen by focal illumination for the first few days after operation.

A "test dressing" is applied for one night. Provided that conjunctival discharge seen at the morning inspection is scanty—merely a particle of mucus at the canthus or in the lower fornix, or a little thin dried matter on the skin of the lids—scarcely any chronic condition of the palpebral conjunctiva is allowed to delay operation. We disregard chronic thickening, roughness, scarring, minute cysts, small follicles in the fornices, and scanty remains of confluent pale lymphoid trachomatous tissue over the tarsi.

Our standard solution is 1 in 3,000 perchloride. All eyes are irrigated with it before cocaine installation, but the effect is adapted to individual requirements by varying the period of

*I allude to ordinary cataract extraction—not the sub-conjunctival extraction of Czermak and others, which is particularly safeguarded against infection.

irrigation. Practically normal conjunctivæ are irrigated for $1\frac{1}{2}$ minutes, or rarely less; others for periods up to $1\frac{3}{4}$ minutes. In response to the irritation set up in fairly normal mucous membranes we expect to find, after the ten minutes' cocaine instillation period, an accumulation of mucus in the fornices, with perhaps a trace of shreddy membrane lying over the tarsi. This is detached by rubbing the lids upon one another, and washed with sterile salt solution. If the quantity of mucus secreted is found to be quite small, a little further irrigation with perchloride is now practised. In conjunctivæ diffusely scarred, or chronically thickened, roughened, and indurated, the formation of mucus is always very scanty or entirely wanting. In these cases the secondary perchloride treatment is continued till a faint superficial paleness is seen on the palpebral conjunctiva, evidently due to change in the superficial epithelium. Finally, there are a few chronic inflammatory cases, where, at the morning inspection more mucus is found than can be faced with confidence. These are treated also with a short preliminary irrigation at the time of inspection, two or three hours before operation. It is probable that the perchloride (1) assists in the removal of micro-organisms entangled in the mucus secreted, and probably also (2) imprisons them in the epithelium altered by coagulation-necrosis, besides (3) in some cases, where much lotion is used, directly attacking the vitality of the organisms. Major Elliot's preparatory treatment of the conjunctiva occupies sometimes weeks and even months. We find that patients from up-country cannot, as a rule, afford to wait for out-patient treatment, and we have not beds to spare for their treatment as in-patients, without seriously curtailing the amount of useful work done by the Hospital. Further, we have no wards to accommodate the discharging eyes apart from operation cases. On the other hand, the drawback to our perchloride treatment is a very occasional excessive conjunctival reaction, induced by rather free use of the lotion in conjunctivæ of fairly normal appearance, but considered dangerous from the presence of a trace of discharge. No real harm is done in these cases, however. And although it is the rule rather than the exception to find a little lid swelling persisting for some days after our operations, there is often distinctly less discharge from the conjunctiva than from that of the fellow eye, untreated but bandaged for a day after operation.

The table gives the number of colonies grown on ordinary Löffler's serum, from the lower fornix in fifty cataract cases. The first column gives the order in which the cases were dealt with. The second and third columns give the conjunctival flora before perchloride treatment; the fourth column the same

immediately before operation, after the removal of mucus with sterile salt solution. The organisms were transferred by means of sterile cotton-wool swabs, which were well rubbed over the exposed conjunctiva. The test was intended to be a purely quantitative one. But the varied results of the treatment upon different classes of organisms necessitated a little detailed consideration. The "white cocci" in the Table include in one or two instances *m. candidans*, otherwise they are all *staphylococcus albus*, some of them doubtless pathogenic. The "orange cocci" may be accepted as probably in nearly all cases *staph. aureus*. The "citron cocci" may possibly include both *staph. p. citreus* and *staph. cereus flavus*. The pneumococci and streptococci in cases 15 and 34 were verified by subculture on broth. The Morax-Axenfeld diplo-bacilli may be accepted with little reserve, as conjunctival organisms liquefying serum, with the formation of the usual large pits, and shewing under the microscope the well-known bacilli and their degeneration forms. The diphtheroid bacilli are doubtless in nearly all cases *xerosis bacilli*.

GROUP A.—Few or no organisms, except diphtheroid, either before or after treatment.

No.	BEFORE.	AFTER.	Remarks.
1	White cocci, 3 Diphtheroid	160	
2	Citron cocci, 1	12	Citron cocci, 1
4	White cocci, 2 Orange cocci, 1 Citron cocci, 2	32	Citron cccci, 2
6			
7	White cocci, 1	22	
8	White cocci, 1	1 (?)	White cocci, 1
9	Cocci, translucent, unrecognised, 2	2 (?)	
10	White cocci, 2 (?) Mixed cocci, 1	6	
11	White cocci, 1	24	
14		35	

GROUP A—*continued*

No.	BEFORE.	AFTER.	Remarks.
19		over 100 White cocci, 1	
23	Citron cocci, 1	over 100 Citron cocci, 1	
24	White cocci, 4 Orange cocci, 1	over 100 Orange cocci, 1	
25		34 White cocci, 1 (?) Pneumococci or streptococci, 1	
28	White cocci, 3	10 White cocci, 1	
30	White cocci, 4	47 Sarcinæ, 1	
31		over 200 Citron cocci, 1	
33	White cocci, 3	3 (?) White cocci, 1	
35		15	
36	White cocci, 1	1 (?) Unrecognised bacilli, 1	
42	White cocci, 1 Orange cocci, 1	62	
43	White cocci, 1	over 100	
44			
49	White cocci, 2	44 White cocci, 1	

GROUP B.—Numerous organisms, effect of treatment definite and (?) sufficient.

No.	BEFORE.	AFTER.	Remarks.
	Diphtheroid		
5	(?) Mixed cocci, 8	41	
13	Mostly white cocci, about 40	White cocci, 1 (?) Mixed cocci, 1	
15	Pneumococci, over 30	8 Citron cocci, 1	Conjunctiva normal except for slight injection and roughness

GROUP B—*continued*

No.	BEFORE.	AFTER.	Remarks.
16	(?) Mixed cocci, 6 over 30		
17	White cocci, 21 8		
18	(?) Mixed cocci, 5; large bacilli un- recognised, 4	(?) Mixed cocci, 1	
20	Morax-Axenfeld, 17	over 200	Conjunctiva normal, except for slight injection
21	White cocci, 2 Citron cocci, 2 (?) Mixed cocci, 7 Morax-Axenfeld, 4	19	Very slight conjunctival injection and roughness
22	White and coloured cocci, numerous	over 100	White cocci, 2
26	White and coloured cocci, 15	over 100	Orange cocci, 1
27	White cocci, 8 Orange cocci, 1 Citron cocci, 1	55	White cocci, 2
32	White cocci, 11 Cocci, translucent, unrecognised, 4 Morax-Axenfeld, 26	over 150	A mould, 1 Moderate conjunctival scarring, mucus at inner canthus
34	White cocci, 1 Streptococci numerous	over 100	White cocci, 1 Nearly normal conjunctiva, traces of old scarring
37	White and coloured cocci, 21	25	
38	White cocci, 2 Mixed cocci and bacilli, 5 A mould, 1 Morax-Axenfeld, 2	58	Orange cocci, 1 Slight conjunctival injection, a little mucus in lower fornix
39	Orange cocci, 3 White cocci, 36 Red (?) cocci, 1	over 200	Orange cocci, 1
40	Orange cocci, 11 White cocci, 2 Citron cocci, 1	over 150	
41	Orange cocci, 2 White cocci, 13 Morax-Axenfeld, 1	over 60	Very slight conjunctival injection and roughness

GROUP B - *continued.*

No.	BEFORE.	AFTER.	Remarks.
46	White cocci, 8	60	White cocci, 1 (?) Infective result
47	White cocci, 6 (?) Mixed cocci, 6	37	Orange cocci, 1
48	White cocci, 7	over 200	
50	White cocci, 38	37	White cocci, 4

GROUP C.—Numerous organisms, effect of treatment insufficient.

No.	BEFORE.	AFTER.	Remarks.
3	White cocci, 6 Coloured cocci, 15	Diphtheroid 90	White cocci, 3 Orange cocci, 3
12	White cocci, 5	over 300	White cocci, 6 (?) Pneumococci, 3 Slight conjunctival roughness, moderate diffuse scarring
29	White cocci, 36 Coloured cocci, 16 Small thin bacilli, unrecognised, 10		White cocci, 6 Coloured, cocci, 6 Chronic injection and roughness, pigmentation from former epi- thelial xerosis
45	White cocci, 6 (?) Mixed cocci, 1 Cocci, translucent, unrecognised, 2	66	White cocci, 4 Orange cocci, 9 Citron cocci, 4 Remains of trachoma, thickening and unevenness

Comments and Deductions.

1. The diphtheroid organisms are placed in a separate column, in order to show more clearly the effect of the treatment upon other organisms, possibly or certainly pathogenic, with which we are more concerned. It will be noticed that in no single instance were diphtheroid bacilli found after the perchloride irrigation. Although these saprophytes were in some instances exceedingly numerous beforehand, their removal from the conjunctival sac was always complete. These readily removable organisms are excluded from consideration in the following remarks.

2. According to the results of the test, the cases have been placed in three groups. In groups A and B, including the large majority of the cases, the condition of the conjunctiva may be

considered fairly satisfactory at the time of operation. Organisms, possibly pathogenic, were either very few in number or absent. In Group B this was due to a striking clearance effected by the perchloride irrigation, but in Group A it was due rather to the fact that no great cleansing was needed. One might have expected that where few microbes only were present, their removal should have proved an easy matter; but staphylococci are evidently difficult to remove.

Although the success in dealing with some foul surfaces was remarkable and striking, yet we quite failed throughout to ensure absolutely sterile results, whatever the state of the conjunctiva—whether markedly abnormal or practically normal. In some instances where very few cocci were found beforehand, the effect of the conjunctival treatment was quite inappreciable. The contrast between the results obtained with regard to diphtheroid bacilli, on the one hand, and staphylococci, on the other, would suggest that the resistance shown by the latter indicates frequent embedding of the cocci in the conjunctival epithelium.

The cases which gave sterile results after treatment are not collected into a separate group, because of the uncertainty of the test. With only a few microbes on the swab, it must be a matter of chance whether one or more are transferred on to the culture medium. It will be noticed that two conjunctivæ in the list were apparently sterile before treatment.

In Group C are collected the few conjunctivæ which appeared to be in a definitely unsatisfactory condition after treatment. In case 29 of this group the effect of treatment is very obvious, but insufficient.

3. Delayed appearance of the colonies shown in column 4 was in some cases distinctly noticeable, pointing to an effect of the perchloride on the vitality of the organisms.

4. The uncertainty of the test is strikingly illustrated by Case 46. The pupil and coloboma become closed and drawn up to the wound from iritis. This we count as one of our very rare infections. Whence came the infection? Our precautions, apart from conjunctival treatment, are exact and uniform. It may be noted that in the tube inoculated from this conjunctiva before irrigation, besides the colonies shown in columns 2 and 3, two moist pits formed, very suggestive of Morax-Axenfeld diplo-bacilli. Their formation, however, came to a standstill after a few days, and no causative bacilli were found in them.

5. The very large number and varied character of the micro-organisms present in some of these conjunctival sacs before treatment, bears out my statement with regard to the numerous chronic inflammatory conditions of the conjunctiva which are

accepted in India in eyes submitted to cataract extraction. The need for vigorous treatment of some kind is very evident.

6. A curious feature of the results is the occasional appearance of micro-organisms in column 4, unrepresented in column 2.

To some extent this must be accepted as a commentary on the uncertainty of the whole research, already referred to. But an additional explanation may be found in the fact that, with the patient lying on the table immediately before operation, more complete exposure of the lower fornix was frequently obtained than at the earlier attempt, and the swab was therefore more firmly rubbed over the conjunctival surface. Some doubt must be attached to the pneumococci shown in column 4 of cases 12 and 25, as they were not verified by subculture. It is possible that in the tubes inoculated from the same conjunctivæ before irrigation the growth of similar organisms was interfered with by diphtheroid colonies.

7. The Morax-Axenfeld colonies were unexpected in all the five cases in which they were found. It is satisfactory to note that these diplo-bacilli may apparently be classed with xerosis bacilli in respect to the certainty with which they can be removed from the conjunctival surface. In no case are they represented in column 4. It would seem therefore that these organisms are but little to be feared in connection with operation wounds.

8. An occasional want of correspondence between the state of the conjunctiva and the flora grown from it, corresponds with what we know of operative casualties. In ordinary practice infections come unexpectedly and inexplicably. In the present list the pneumococci and streptococci of cases 15 and 34 may be instanced as particularly dangerous microbes found where there was little or no clinical evidence of their presence. The inference is that since exact indications are wanting, the precautions in the way of conjunctival treatment before operation must err somewhat in the direction of excess, if uniform safety is to be assured.

My thanks are due to Dr. B. P. Banaji for much of the work done in connection with this research.

ON PARINAUD'S CONJUNCTIVITIS.*

BY

ANDREW LITTLE, M.B., C.M.,

SURGEON TO THE EYE AND EAR HOSPITAL, BRADFORD, ENGLAND.

This particular form of conjunctivitis was first described by the ophthalmic surgeon whose name it bears, about 17 years ago.

* A communication read at a meeting of the Yorkshire Branch of the British Medical Association, held at Bradford, June 13th, 1906.

During the period extending from 1889, when the first case was published, down to the present, upwards of thirty cases of this disease have been brought before the profession.

The peculiar features and characteristics of the disease are as follows :—

It is an affection of the conjunctiva somewhat resembling trachoma or granular conjunctivitis. It is *monocular*. There have been two cases described with both eyes affected, but from other features of these binocular cases, I doubt the diagnosis. In the inflamed conjunctiva are seen arranged more or less irregularly along each fornix a number of opalescent rounded projections, with, in addition, a number of smaller and more pellucid miliary granules, much resembling the granules seen in trachoma. These granules are confined to the thickened and inflamed conjunctiva. The rest of the conjunctiva is normal in appearance. The position of greatest inflammatory thickening of the conjunctiva is along the upper and the lower fornix conjunctivæ. This inflammatory thickening spreads forwards on the globe of the eye, but (and this is a very marked feature in those cases and very unlike granular conjunctivitis) stops short of the ciliary zone and leaves the cornea quite intact. In granular ophthalmia the well-known corneal condition seen, to which we give the name *pannus*, is the case. The thickening of the fornices also involves the lower and upper tarsal conjunctivæ, giving the lids a very characteristic appearance, as if there were tarsal cysts in them. The lids feel indurated, and also look so. There is a very noticeable absence of suppuration in the eye. Sometimes there is ulceration, but not often. Ulcers were observed in about eight of the cases. They were from pin-head size up to quarter of an inch in one instance. The ulceration is apparently due to the breaking down of the small thickened enlargements in the conjunctiva through some necrotic process, supposed at present, by certain observers, to be due to the presence of a micro-organism which brings about this necrosis. Associated with the eye disease is inflammatory enlargement of the pre-auricular glands, which are always in a state of active inflammation when the eye condition is at its worst. In about half the cases published they suppurated and required to be treated surgically. The conjunctival enlargement and the contents of the inflamed glands have been examined most carefully by bacteriologists and histologists of repute with very little result. It is generally considered to be due to a form of micro-organism not yet discovered—at any rate not to any of the known ones, *e.g.*, tubercle, etc. Histologically, the tissues show the ordinary features of inflammatory granulation tissue with giant cells containing vacuoles, and it is

considered by F. H. Verhoeff and G. S. Derby that these are phagocytic in nature. The disease is not serious as regards the eye or the neck, as it subsides in from two to six months, leaving the eye healed and perfectly normal. The glandular inflammation gradually clears up in about the same time. Sometimes there is fever and a little malaise accompanying the disease, and probably due to it.

With regard to cause, when Parinaud first described the disease he came to the conclusion that it was the result of inoculation of the micro-organism of foot and mouth disease, but fuller investigation has thrown great doubt on this. It has been attributed to the sting of a bee. One writer considered the inflammatory process due to the introduction of a toxin of some sort. Most seem of opinion that it is due to the introduction of a specific micro-organism not yet discovered.

With regard to age, periodicity, and distribution, it is commoner among females, but by a very small amount, e.g., 15 females to 12 males. It is commonest among those in their teens; about three-fourths of the cases were below 20 years, but the disease has been found up to the age of 55 years. Almost all the cases published came from America and France, and the peculiarity of the distribution, as regards the foot and mouth disease theory, is that foot and mouth disease is common over those tracts of France and America, e.g., North of France, and in Kansas, Iowa, and Massachusetts. Few cases have been published from Germany. I am indebted to Sydney Stephenson for references to cases by R. W. Doyne in the *Lancet* of November 7th, 1903, and May 28th, 1904:—

Harry T_____, aged six years, was sent by Dr. Anderton, of Barnoldswick, on October 25th, 1905, to the Eye Hospital, Bradford, for advice.

History.—He was last August hit on the left eye, about the region of the inner corner. The blow produced inflammation of the eye, and shortly after he noticed that there was a painful lump in front of the left ear. The lump ultimately burst and discharged a quantity of matter. The eye and the abscess in front of the ear were treated for a month by Dr. Anderton, and the patient was then sent to the Hospital to see me.

The patient's **Family History** is very good. There was no history of tubercle, syphilis, trachoma, or rheumatism. He looked healthy, and was well developed. Had at no time any association with animals. He lived the ordinary life of a weaver's child in the small cotton manufacturing town of Barnoldswick, a locality in which foot and mouth disease is unknown.

On admission we found the left eye was more prominent than the right. The lids were closed and thickened. The lids looked as if they contained multiple nodules which were becoming inflamed. He could open the eye when he tried, but on looking forward with the opposite eye open to the usual amount, the lids of the inflamed eye were practically closed though a little of the eye could be seen.

On closer examination of the eyes and lids there was no blepharitis or Meibomian cysts or hordeola. No lacrymal obstruction or discharge of any sort from the conjunctival sac. The conjunctiva was thickened and injected over the lower and upper lids especially towards the proximal margin; much less thickened and inflamed towards the distal margins. The ocular conjunctiva was also very much thickened and deeply injected from behind, forward as far as a circle round the cornea, about one-eighth

inch behind the periphery of the cornea. The conjunctiva of this zone, corresponding to what is known as the ciliary zone, was quite white and apparently normal, and very sharply defined from the diseased conjunctiva. The cornea and rest of the eyeball was quite normal. On raising the upper eyelid or pulling down the lower, the fornix (upper or lower), through the great thickening and injection, easily everted itself forwards, bringing the conjunctiva into clear view. This thickened conjunctiva was of a lumpy nature, as if produced by localised swellings in it, and over the whole of the thickened conjunctiva occupying the fornix globe and lids, there were to be seen small pellucid miliary spots very like the tubercles of miliary tuberculosis. There were no suppurating points anywhere, neither were there any ulcerations. The movements of the eye were normal, except for a little restriction due to the thickened conjunctiva.

There was a small ulcerating surface with irregular cicatricial thickening where the pre-auricular gland was incised, and close to it there was a small abscess ready for



incising. The submaxillary glands were enlarged. There were no enlarged glands on the other side of the neck. When the second abscess was opened the pus contained thick flocculent particles which, on examination microscopically and bacteriologically, showed nothing out of the common. The patient's disposition was a trifle dull, but his general health was excellent. His temperature was normal.

Progress and Treatment. October 21st, 1905.—The patient was admitted into the hospital. A strip of conjunctiva, including the conjunctival enlargements and miliary spots, was removed from each fornix for histological and bacteriological examination. The gland in front of the ear was thoroughly opened, scraped out, and drained. The treatment adopted afterwards was bathing of the eye, four or five times daily, with boric lotion, and after each bathing yellow ointment was applied along the edges of the eyelids. The sinus in front of the ear was irrigated with solution of perchloride of mercury (1—4,000). Boric ointment was applied over the surface. He was seen every fortnight till January 20th, 1906. When he was again admitted the other glands in the neighbourhood of the ear

showed signs of breaking down, and around the old sinus there was a raw surface, which looked like a tuberculous ulceration. This was scraped by the Volckmann scoop, and the surface painted with solution of the acid nitrate of mercury. He was again discharged from the hospital on January 30th. The glandular trouble went on uninterruptedly to complete cure. The eye trouble improved gradually from his first admission till on March 24th the eye was practically well. Towards the inner corner there was a little thickening seen on evertting the lid, but not visible on examining the eye in the ordinary way. This part was left when the piece of conjunctiva containing the nodules was excised, and seemed on that account to persist very much longer.

Pathology and Bacteriology.—The pieces removed were examined by Drs. Mason and Spark; Dr. Eurich, Bacteriologist to the Corporation of Bradford, examined for micro-organisms particularly and found the examination negative. The material which escaped from the abscess of the preauricular gland was found also to be free from micro-organisms. During the patient's second admission to the Eye Hospital the granulations scraped away from the granulating surface were found by Dr. Mason to contain one or two tubercle bacilli, but I am of opinion that this was due to secondary inoculation from without. The histological examination was reported as showing nothing except inflammatory granulation tissue. There were no signs of any necrotic process.

Points of Diagnosis and Interest in the Case.—The disease was confined to one eye. The peculiar indurated and lumpy appearance of the eyelids gave a very characteristic appearance, as seen in the accompanying illustration. The lower lid had a little of the appearance of entropion, but on closer examination this was clearly not so. The appearance of the inflamed tissue was that of trachoma. The presence of the inflamed preauricular and submaxillary glands, the monocular process, the absence of corneal complication, and, lastly, the fact that the ciliary conjunctiva was quite free from inflammation, clearly point to the diagnosis of Parinaud's conjunctivitis, and I know of no other eye disease with those characteristics. The period of the disease and result also were clearly in favour of the diagnosis. The duration of disease was about five months.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

ECLIPSE BLINDNESS.

- (1) Menacho.—Ocular accidents following observation of the eclipse of the sun of August 30, 1905. (*Trastornos oculares originados por la observacion del eclipse solar.*) *Archivos de Oftalmologia Hisp.-Amer.*, Mayo, 1906.
 - (2) Beauvois., A.—Ocular accidents from watching eclipses of the sun. (*Accidents oculaires consécutifs à l'observation des éclipses de soleil.*) *Recueil d'ophtalmologie*, mai et juin, 1906.
- (1) The eclipse of 1905 was not followed, in Spain at least, by so many distressing accidents as was the case in 1900. Menacho attributes this, in part at least, to the press, which has striven to

make the danger of unguarded observation known to all the people, but even more to the fact that the sun was, for the greater part, shrouded in clouds during the totality. He has collected the notes of four cases which are equally divided between the group of retinal disturbance, and that of material lesion. Two showed partial scotoma which gradually disappeared, two presented acute conjunctivitis, which likewise yielded to time and to treatment. As to the former group, "the knowledge which we have of the action of light on the elements which take part in the visual act, although incomplete, allows us, nevertheless, to clear up the mechanism of its production. We know that the pigmentary epithelium acts as an insulator of the neuro-epithelial elements, to absorb the excess of light and to produce the erythropsin; we know that erythropsin alters under the action of light, that it regenerates in darkness, that in virtue of its fluorescences it allows adaptation to rays of short wave length (ultra-violet), and that its decomposition provokes the reflex descent of the pigment; we know, further, that the action of light provokes retraction of the rods and cones, diminishes the colorability of the nuclei of the cones, and excites an acidification in the retina, similar to that which muscular work produces in the muscular fibre. Angelucci thinks that the perception of light belongs to the cortical centres, and that the scotoma is also a purely central phenomenon, due to the abrupt changes which the cells of the centres experience when the peripheral neurones undergo so rapid physico-chemical modifications as a result of exposure to direct sunlight." Letamendi thinks that it is merely a matter of retinal fatigue and retention of fatigue-products. HAROLD GRIMSDALE.

(2) Beauvois gives an historical review of eclipse blindness and describes ten cases which were under his care. It appears, from the writings of Aristotle, Lucretius, and Galen, that the Greeks and Romans were more or less acquainted with blindness from exposure of the eyes to the rays of the sun and reflection from snow. Little is recorded after that until the 17th and 18th centuries, when it is evident, from the writings of Gillemain, Hoffman, Saint-Yves, De Buffon, and others, that the condition was well recognised. Since then it has been frequently described under the synonyms of retinal dazzling, retinitis due to dazzling, scotoma helieclipticum, and retinal solar erythema.

The classical symptoms of eclipse blindness are fairly constant and characteristic, *i.e.*, positive central scotoma of varying intensity, with frequently some oscillatory or rotatory movements in or at the periphery of the scotoma. Visual acuity is always diminished, and often remains so permanently. Colour vision and visual fields are not affected. Photopsia, erythropsia,

photophobia, lacrymation, and periorbital pains have been recorded in some cases. Ophthalmoscopically, there is nothing to be seen that can be regarded as pathognomonic. The macula often presents a greyish or reddish appearance and the reflex from it is not modified by movements of the ophthalmoscopic mirror as it is normally. Pigmented oval spots, bright and yellow dots, have been recorded by different observers, and a grey central spot in the middle of a highly coloured macula has been noted and regarded as an optogram of the sun. Ferentinos saw a thin red line round the macula in all his cases and thought it characteristic.

It is doubtful whether true inflammatory disease can be produced by the action of the sun's rays, although Czerny and Deutschmann produced retinitis and choroiditis in animals' eyes by that means. It has been found that chemical rays are the most harmful and that parallel rays are most potent for evil, at any rate in emmetropic eyes.

Pathological anatomical changes have been seen only in animals' eyes. The part of the retinae affected showed some shrivelling of the outer part of the rods, and the pigment in the epithelial cells was closely aggregated towards the external limiting membrane. When the action of the light had been intense the external part of the rods were converted into irregular corpuscular masses and were mixed into a conglomerate layer with distorted pigmented epithelial cells and blood corpuscles. These appearances were regarded as being due to coagulation of the nervous elements of the retina.

The prognosis, although generally supposed to be good, ought to be very guarded. Vision is often defective for months, and it may be even permanently reduced to $\frac{1}{6}$ or $\frac{1}{3}$.

The treatment consists of rest in semi-darkness, which is essential. Yellow glasses have been recommended to counteract the effects of the chemical rays. If headache is severe and local congestion intense, leeches should be applied to the temple or mastoid process. Strychnine, either internally or hypodermically, is indicated as a retinal stimulant. The galvanic current has proved of value in some hands. The moral depression and neurasthenia resulting from the sudden loss of sight requires general treatment. As a prophylactic measure the public should be warned of the danger of looking direct at the sun, and advised to make short intermittent observations through one or more pieces of well-smoked glass. J. JAMESON EVANS.

PARINAUD'S CONJUNCTIVITIS.

- (1) Caspar, L.—A case of Parinaud's conjunctivitis. (*Ein Fall von Parinaud'scher Conjunktivitis.*) *Centralbl. f. prak. Augenh.*, December, 1905.
- (2) Isola.—Parinaud's conjunctivitis. (*Conjunctivitis de Parinaud.*) *Anales de Oftalmología*, Dec., 1905.
- (3) Demicheri.—Parinaud's conjunctivitis *Archivos de Oftalmología Hisp.-Amer.*, Enero., 1906.
- (4) Reis, Victor.—On Parinaud's disease; a contribution to the question of plasma cells. (*Ueber die Parinaud'sche Conjunktivitis, zugleich ein Beitrag zur Plasmazellenfrage.*) von Graefe's *Archiv für Ophthalmologie*, Bd. 63, 1 Heft, 27 März, 1906.
- (5) Hoor, Karl.—Parinaud's conjunctivitis. (*Die Parinaud'sche Konjunktivitis.*) *Klin. Monatsbl. f. Augenheilkunde*, April-Mai, 1906.
- (6) Bernheimer, St.—A contribution to Parinaud's conjunctivitis. (*Ein Beitrag zu Parinaud's Konjunktivitis.*) *Klin. Monatsbl. f. Augenheilkunde*, April-Mai, 1906.
- (7) Spratt, Charles Nelson.—A case of Parinaud's conjunctivitis, accompanied by erythema nodosum and tonsilitis; with a summary of the thirty-four reported cases. *Archives of Ophthalmology*, March-May, 1906.

(1) Caspar reports a case of Parinaud's conjunctivitis in detail. The patient was a girl, 6 years of age, who presented herself with a mumps-like swelling of the right side of the face, a reddened and inflamed bulbar conjunctiva with, at one spot, a fairly large diphtheroid membrane. A diagnosis of diphtheria was made, and the patient treated accordingly. The condition grew worse, and was then regarded as an aberrant form of trachoma. In spite of treatment, the condition spread, the lid became thickened, and a line of abscesses formed, some of which disappeared spontaneously, others broke, while the largest were opened. The discharge consisted of thin purulent matter. At no time could actinomycosis or other streptothrix be found. The condition slowly improved, and by the end of two years could be considered as cured.

A. LEVY.

(2) Isola's case was somewhat unusual: the patient was a small child, aged 5, who had not been in contact with any animal except a domestic cat. The personal and family history were good.

The onset of the present disease was gradual; the first sign noted was a swelling of the glands of the left side of the neck and left sub-maxillary region, without any pain or disturbance of the general health. Soon after, there was swelling and drooping of the left eyelid, but there were no signs of any ocular inflammation, beyond a very trifling amount of secretion. The ocular features did not attract the attention of the medical man who first had charge of the case. In spite of treatment, the glands, at the end of three months, suppurated, and were incised. When Isola saw the child his attention was drawn to the left upper lid, which was swollen, and seemed to be the seat of a chalazion. However, when the lid was everted, it was seen that the prominence was due to a large mass of granulations. These, at first, were taken to be tuberculous in origin, but experimental research showed no sign of the bacillus tuberculosis. On the other hand, there were numerous staphylococci. Isola, therefore, gave up the idea that the lesion was tuberculous, and made a diagnosis of Parinaud's disease. Treatment directed to the conjunctiva soon brought about recovery, with resolution of the inflamed glands.

H. GRIMSDALE.

(3) **Demicheri** publishes short notes of a mild case of this affection.

H. GRIMSDALE.

(4) By excision of particles of the conjunctiva from a typical case of Parinaud's disease and of a granulation from a hypertrophic affection of the conjunctiva, which, although of a different character, offered similar histological characteristics, **Reis** is able to contribute to our knowledge of plasma cells, which he finds very abundant here, as was to be expected in such a peculiarly chronic affection. He decides against a hæmological origin (from leucocytes). The epithelioid cells, which were also found, seem to represent an intermediate stage between connective cells, on the one hand, and plasma cells, on the other. R. GRUBER.

(5) **Hoor** gives a critical and exhaustive survey of all published cases of Parinaud's conjunctivitis, and adds to their number an observation of his own. It was, clinically, a typical case, which took the usual benignant course. But the histological examination of pieces of excised tissue showed the pressure of subepithelial nodules which were indistinguishable from real tubercles. On the other hand, no tubercle bacilli were found, nor did inoculations of a rabbit's eye, or the peritoneum and skin of guinea pigs, with diseased particles, lead to a positive result. Hoor, therefore, considering all the aspects of the disease, does not incline to the conception of Parinaud's conjunctivitis being of a tuberculous nature, in spite of his histological findings.

C. MARKUS.

(6) **Bernheimer** adds to our knowledge of Parinaud's conjunctivitis by publishing a case which differed clinically in some respects from the usual type. There was a great deal of muco-purulent discharge, the cornea was implicated in the shape of catarrhal ulcers, and the whole affection was of such an obstinate nature that nothing short of the total excision of the upper tarsal "cartilage" would effect a cure. The microscopical examination of the removed part showed the changes in the mucous membrane which have been described by Verhoeff and Derby (see abstract in THE OPHTHALMOSCOPE, 1905, page 343), but, in addition to this, the tarsal cartilage itself was found to be perfectly normal, a striking histological evidence of the difference between trachoma and Parinaud's conjunctivitis. C. MARKUS.

(7) The peculiarities of **Spratt's** case of Parinaud's conjunctivitis lay in the several facts that the ocular inflammation was accompanied by red, swollen, and painful tonsils ; was associated with a temperature of 100·2°F. ; and was followed by erythema nodosum of the tibiæ, right patella, and left forearm. The preauricular gland on the same side as the affected eye suppurated, and by incision thin yellowish pus was evacuated. Recovery ensued 39 days after excision of several of the subconjunctival masses, although the submaxillary gland remained enlarged. Spratt summarises the 34 reported cases of Parinaud's conjunctivitis, with results epitomised below :—
1. The disease is nearly always unilateral. The right is more often affected than the left eye (21 as against 11). 2. The disease occurred 18 times in males and 16 times in females. 3. The majority of the cases occur in young adults. 4. A majority of the cases are met with in autumn and winter. 5. The average duration is from five to eight weeks. 6. The neighbouring glands suppurated in twelve cases. 7. The etiological factor of the conjunctivitis is unknown. There is no evidence to prove that it is, as surmised by Parinaud, of animal origin. 8. Excision of the nodules, followed by suture of the conjunctiva, is preferable to cauterisation or the application of caustics.

S. S.

THE ORIGIN OF PAIN IN PHOTOPHOBIA.

Fridenberg, Percy—On the origin of the pain in photophobia and the blepharospastic syndrome. *Ophthalmic Record*, August, 1905.

Fridenberg believes that we must distinguish two classes of photophobia, which differ absolutely in cause and mechanism ;

although both may be accompanied by similar external and superficial manifestations. First: Specific, idiopathic, primary, retinal photophobia, representing a reflex from the optic nerve to the sensory branches of the trigeminus or ciliary nerve, or to the motor nerves of the eye and lids, and due to hyperesthesia of the nerve filaments engaged in light-perception, or to excessive stimulation of normal structures. The discomfort in these cases, he says, is caused by intense "specific" stimulation of the retina; actual pain, by iris cramp. This form is that observed in normal eyes suddenly exposed to glaring light, as in retinal asthenopia, neurasthenia, hysteria, and perhaps in snow blindness. Second: Secondary symptomatic, superficial, corneal photophobia, due to hyperesthesia of the sensory nerve terminals in the skin of the lids, cornea, conjunctiva, and ciliary body, as well as in the mucous membrane of the nose, in the maxillary antrum, teeth, and representing the reflex from the sensory fibres of the trigeminal nerve, and other nerves, to the motor branches of the facial. In this class of photophobia we have to deal with corneal or ciliary pain, absolutely independent of any process in the iris or retina. The most frequent causes of such pain are the irritation of the superficial nerve endings in abrasion or foreign body in the cornea, corneal ulcer, sympathetic iritis, cyclitis, ciliary wounds, and so forth. Of this form, which he designates as pseudophotophobia, or the blepharospastic syndrome, phlyctenular keratitis is a characteristic paradigm, and tonic blepharospasm the clinical expression.

C. A. O.

PARALYSIS OF THE ASSOCIATED MOVEMENTS OF THE EYEBALL.

Spiller, William G.—The importance in clinical diagnosis of paralysis of associated movements of the eyeballs (*Blicklähmung*), especially of upward and downward associated movements. *Journal of Nervous and Mental Disease*, July and August, 1905, pp. 417 and 497.

William G. Spiller read this paper as the Presidential Address before the American Neurological Association last year, and it is fully reported, occupying 64 pages. He uses as a basis of the paper four cases of paralysis of lateral associated ocular movements, and nine of paralysis of upward or downward associated movements; these cases are described in detail, as are the microscopic preparations obtained from four of them. The account of the literature on the subject is very complete, adding

greatly to the value of the contribution. The paralysis of lateral associated movements is first dealt with, but only shortly, as the author has dealt with it fully elsewhere. He says that the best evidence points to the existence of a centre for this movement in the posterior part of the frontal lobe, though the possible existence of another such centre in the angular gyrus is not thereby excluded. It has been clearly shown by Déjérine that this paralysis may be quite independent of hemianopsia. When such paralysis is temporary, it suggests a cortical lesion ; when it is permanent, a lesion of the posterior longitudinal bundle near the sixth nucleus.

Turning now to the vertical associated movements, by analogy it must be assumed that a cortical centre exists for these movements also ; but we have no positive evidence as to its site. The writer criticises Parinaud's views on this subject in a destructive manner. Again it is now almost certain that the corpora quadrigemina possess no centre for any eye movements ; both clinical and experimental evidence points to this certainty. The question of localisation of the eye muscles in the oculo-motor nucleus is referred to. Spiller holds it probable, thus differing from many authorities, that the elevators are represented further back than the depressors ; two of his cases in which paralysis of upward associated movement was due to a pontine tumour creeping forward, strongly support this view. It seems reasonable to suppose that connecting fibres, analogous to those of the posterior longitudinal bundle, join the two elevators together and the two depressors. The rareness of isolated paralysis of downward associated movement, due perhaps to the fibres which in this case have to connect up two different nuclei, is certainly striking as compared with the occurrence of depressor paralysis.

Conjugate deviation of the eye in pontine lesions is usually due to bilateral implication, as a one-sided lesion as a rule paralyses the sixth nerve only.

The author has studied 38 cases of paralysis of upward or downward movement from the literature, in addition to his own 9, and appends an abstract of each. As well as these 47 he adds in a postscript three others but does not include them. Some of the conclusions reached are as follows. Paralysis of upward associated movement without even paresis of downward associated movement occurred in 26 cases, paralysis of both upward and downward associated movements in 16 ; paralysis of upward associated movement with impairment of lateral movement—which often developed later—occurred in 15, and paralysis of upward associated movement without improvement of lateral

movement in 22 cases ; paralysis of downward associated movement without paralysis of upward movement was found in 5 only. The reaction of the iris was usually not stated ; it was impaired in 14 cases and normal in 13. The optic nerve was affected in 15 and normal in 12 cases. Convergence was impaired in 15 cases and normal in 9. Ptosis was found in 7 cases and stated to be absent in 13. A necropsy was obtained in 19 cases. In all cases except one the lesion was found about the aqueduct of Sylvius ; in that one case a gumma of the cerebral peduncles was present with degeneration of the third nerves ; the nuclei were, however, not examined by the Nissl method in this instance. The lesions were tumour (14), bullet wound (1), apoplectic cyst (1), haemorrhage (1) and uncertain (1). Recovery, complete or incomplete, occurred in 7 cases. Important symptoms other than ocular palsies were found in 41 cases. The author's opinions based on these studies are : persisting paralysis of associated lateral movement indicates a lesion of the posterior longitudinal bundle ; persistent paralysis of vertical associated movement indicates a lesion in the vicinity of the oculo-motor nucleus ; paralysis of associated movement is not the result of a lesion of extra-cerebral nerve fibres ; lesions of the cerebral cortex may certainly cause paralysis of lateral associated ocular movements, and possibly of upward or downward associated movements, but such cortical paralysis is transitory unless possibly where the centre on each side of the brain is destroyed. Hysteria may cause paralysis of associated ocular movements. Any case in which paralysis is persistent and organic is unsuitable for radical operation, as the lesion is either within the posterior part of the pons or cerebral peduncle, or is causing much pressure on the dorsal portions of these structures. Inflammatory lesions may produce such paralysis which in this case may disappear. Several good photographs accompany the article.

ERNEST JONES.

FILTRATION AND GLAUCOMA.

- (1) Uribe y Troncoso.—Experimental researches on the filtration of saline and albuminous liquids through the anterior chamber and its rôle in the origin of glaucoma. (*Recherches expérimentales sur la filtration des liquides salins et albumineux à travers la chambre antérieure et son rôle dans la genèse du glaucome.*) *Ann. d'oculistique*, T. CXXXIII, p. 5, janvier, 1905.

- (2) Leber.—On the filtration of the eye and its rôle in the pathogeny of glaucoma. Remarks on the work of Dr. Uribe y Troncoso. (Sur la filtration de l'œil et sur son rôle dans la pathogénie du glauchome. Remarques relatives au travail de M. le Dr. Uribe y Troncoso.) *Ann. d'oculistique*, T. CXXXIII, p. 401, juin, 1905.
- (3) Leber.—Some more remarks on the measuring of the filtration of the eye. (Encore quelques mots à propos de la mensuration de la filtration de l'œil.) *Ann. d'oculistique*, T. CXXXIV, p. 217, septembre, 1905.
- (4) Uribe y Troncoso.—On the filtration of the eye, and its rôle in the pathogeny of glaucoma. Corrections in reply to the critical article by Professor Th. Leber. (Sur la filtration de l'œil et son rôle dans la pathogénie du glauchome. Rectifications à propos d'un article de critique du professeur Th. Leber.) *Ann. d'oculistique*, T. CXXXIV, p. 250, octobre, 1905.

(1) Uribe y Troncoso in a previous article¹ endeavoured to show directly by chemical analysis of the aqueous that in glaucoma the presence of a large quantity of albumen in the anterior chamber is the determining cause of the difficulty of osmosis through the canal of Schlemm, and ought to be considered as the *primum movens* of the whole cycle of phenomena which ends in adhesion of the root of the iris to the cornea, a condition the immediate cause of which is increase in the volume of the vitreous. He now returns to the subject and describes experiments which he has carried out with Leber's manometer to show the influence upon the excretion through the angle of the anterior chamber of (1) the presence of albumen in the aqueous, (2) alterations of pressure in the vitreous.

Dealing with the construction and method of using the manometer, Troncoso criticises the assumption of Niesamoff, that because 5·5 c.mm. of saline solution passed from the instrument into an eye, therefore the same amount passed out by filtration, and describes experiments in which (1) by collecting and measuring the filtrate, (2) by carefully weighing eyes before and after experimenting on them, he obtained results showing that (a) the manometer does not measure the real filtration, that is the amount of liquid which passes out of the eye; but this, plus a quantity which the anterior chamber retains. (b) this quantity depends on the greater or less resistance offered by the vitreous of the dead eye and on the pressure at which the liquid is injected into the eye which pressure gradually diminishes

(1) *Annales d'oculistique*, décembre, 1900.

in the manometer during the experiment; (c) in certain cases when the output remains constant in spite of diminution of pressure, part of the liquid which has collected in the eye can pass out of it to compensate for this diminution.

To test the difference between the rates of filtration of albuminous and non-albuminous solutions, Troncoso used (1) a 7·5 per 1000 solution of sodium chloride filtered through a Chamberland's bougie; (2) blood serum of dogs and horses diluted with the saline solution so as to make carefully standardised solutions containing 1, 2, 3, 4, 5, and 6 per cent. of albumen. Numerous experiments were made on eyes of men and animals, each of which was first tested separately with the saline solution to ascertain its filtration rate, and then with one or more of the albuminous solutions. Except in two instances, in which the eyes were not fresh, and owing to post-mortem changes, the filtration of all the solutions was much reduced, the filtration of albuminous liquids was always much inferior to that of saline solutions, and usually reached only 2/3 to 3/5 of the latter. In short experiments the concentration of the solution had not a proportional influence on the diminution, but when the experiment was continued for 8-10 hours, the filtration ceased as a result of accumulation of albumen in the anterior chamber, in consequence of which albumen was present in the filtrate in reduced proportions only.

To test the effect of variations of pressure in the vitreous on the rate of filtration, in addition to the needle passed through the cornea and connected with the manometer, a second hollow needle was passed through the sclerotic and connected by means of an india-rubber tube with a vessel containing 7·5 per 1000 saline solution, which could be raised or lowered, so as to produce any desired pressure in the vitreous, and the following results were obtained.
(a) When the pressure in the vitreous was equal to that in the aqueous, the rate of filtration was only half as much as when there was no interference with the condition of the vitreous.
(b) When the pressure in the vitreous was higher than in the aqueous, the filtration was still further diminished until it ceased altogether, when the pressure in the vitreous exceeded that in the aqueous by an amount varying in different eyes between 2 mm. and 6 mm. of mercury.
(c) The filtration could be stopped or restored at will by varying the pressure in the vitreous. Similar results were obtained with one needle in the posterior chamber and another in the vitreous. Troncoso considers that the only satisfactory explanation of these results is that they are due to mechanical blocking of the filtration angle, an opinion which is supported by anatomical examination of the

eyes, which showed that when the pressure in the vitreous was high the anterior chamber was shallow and the base of the iris pushed against the cornea, while when the pressure in the vitreous was low, the anterior chamber was deep and the filtration angle widely open.

Pressure induced by introducing the needle of Leber's manometer into the vitreous without interfering with the aqueous, produced the same amount of filtration as when the needle was in the anterior chamber, and this filtration could not be abolished even by raising the pressure to 120 mm. of mercury, although its amount was reduced by pressure exceeding 80 mm.

As a corollary to the reduced rate of filtration when the pressures in the vitreous and aqueous are equalized, Troncoso considers that the rate of secretion of the aqueous calculated by Niesnamoff by deducting the rate at which saline solution filtered through a living eye, from that at which it filtered through a dead eye, is too high, and should be only 1.6 mm. instead of 6 mm. per minute.

Finally, Troncoso claims that the difficulty in the excretion of albuminous liquids and the mechanical occlusion of the filtration paths resulting from augmentation of the posterior pressure, completely explain the mechanism of the production of the characteristic symptoms of glaucoma. R. J. COULTER.

(2) **Leber**, in reply to Uribe y Troncoso's criticism of his filtration manometer, and of the exactness of the results obtained with it by himself and his pupils, maintains that although the figures obtained cannot be regarded as absolutely exact, they yet represent the filtration rate much more accurately than had been done previously. He calls attention to certain of the results of Troncoso which appear to be either mutually contradictory or impossible, if the apparatus was properly used. He has not found any alteration in the rate of filtration dependent on variation in the pressure in the vitreous, which is comparable to that found by Troncoso, but proposes to further investigate the subject. As he has not yet experimented on the influence of the presence of albumen in the intra-ocular fluids upon the rate of filtration, he refrains from criticising Troncoso's main experiments, but he states that in his dissections of pathological human eyes he has always paid attention to the proportion of albumen in their fluids, and has found it highest in connection with internal inflammation with diminished tension, and not in glaucomatous eyes. R. J. COULTER.

(3) **Leber**, in criticising Uribe y Troncoso's experiments on the filtration of the eye, assumed that the eye could be regarded as an elastic capsule full of liquid, the contents of which would remain the same as long as the pressure within it was unaltered,

and consequently that if in a given time a certain quantity of liquid entered it, the same quantity must escape from it. Wishing to verify this assumption, he has, in conjunction with Dr. Pilzecker, carried out some experiments which, to his surprise, show that Troncoso's statement, that the quantity of liquid which enters the eye is, as a rule, greater than that which passes out of it by filtration, is correct. He attributes this increased capacity of the eye to a change in its shape, and promises full details of his experiments in due course.

R. J. COULTER.

(4) **Uribe y Troncoso** gives the following replies to Leber's criticisms on his article on the filtration of the eye. The amount of liquid which enters an eye in a given time is not, as Leber maintains, necessarily equal to the amount which escapes from it by filtration, the pressure remaining constant, because the eye is not a single elastic capsule filled with fluid, but is divided by the irido-crystalline diaphragm into two compartments, between the pressures in which there is a constant struggle. (This reply was written before Troncoso had seen Leber's article admitting the correctness of his contention, but the explanations of the phenomenon given by the two authorities are totally different.)

The contradictions between his results, to which he himself called attention in his original article, are, he considers, due to the fact that in the experiments referred to, no account was taken of the pressure in the vitreous, the influence of which upon the rate of filtration he still maintains to be marked. The apparently impossible results he attributes to the fact that the measurements of his apparatus do not correspond to those assumed for it by Leber on the authority of the maker.

Dealing with Leber's objections to his pathogenic theory of glaucoma, founded on the fact that he (Leber) had found excess of albumen in the intra-ocular fluids of eyes with diminished tension removed for old inflammations, and not in glaucomatous eyes, Troncoso considers that although such soft eyes have probably gone through a stage of hypertension, due to the presence of albumen in their fluids before becoming hypotonic, the condition which gives rise to true glaucoma (*i.e.*, increase in volume of the vitreous, due to arrest of its nutritive osmotic currents from escape of albumen from altered retinal and choroidal vessels) are not present in them.

Finally, Troncoso criticises the theory that glaucoma is caused by osmosis, due to retention of chlorides in the blood, and ocular fluids as a result of renal impermeability, quoting against it the researches of Desmaret, who found that in a case of advanced glaucoma the ocular fluids had an osmotic tension considerably inferior to that of the blood. R. J. COULTER.

EXPERT TESTIMONY AND OPHTHALMOLOGY.

Vail, Derrick T.—*Expert testimony as it relates to Ophthalmology. American Journal of Ophthalmology.* September, 1905.

Vail states that expert ocular testimony implies, in the first place, an accurate and detailed knowledge of the science of ophthalmology, coupled with abundant practical experience; and, in the second place, a complete understanding of the plaintiff's ocular condition. He justly says that "for an expert to diagnose and treat an ophthalmic case in routine practice entails only a moderate amount of time, for much of the tedious work, such as taking the visual fields, testing the ocular muscles, etc., is well done by trained assistants under his supervision; but the examination of a case with a view of furnishing evidence entails the expenditure of a great deal more time on the part of the oculist himself, for the clinical reports furnished by assistants amount to only hearsay evidence and will not be admitted." It is, therefore, the author tells us, the expert's duty to conduct this examination personally and with consummate care, for he may be asked while on the witness stand to state the details of the examination step by step; this being done in order to determine if some detail has been neglected. "The hurried and incomplete examination of the plaintiff's eyes is sure to be exposed in glaring exaggeration before the jury to the detriment of the expert." The habit of examining a case in a cursory manner is apt to lead to a wrong diagnosis, and even an expert of undoubted ability will be led honestly to testify to a false state of affairs. There is no class of cases, the author informs us, which calls for greater perception and skill in diagnosis than those of simulation. Excellent work on visual economics are to be had, wherein working formulæ for estimating the amount of pecuniary compensation which is just in nearly every instance, can be found. Some of the disagreeable features connected with expert testimony are that if one has distinguished himself on the witness stand as an expert, he is apt to be called upon to testify in all sorts of ophthalmic cases which will result in positive injury to reputation. The second is that one's evidence may run entirely counter to the interests of the side employing his services, and as he must look to the part subpoenaing him for his fee as an expert, he feels "diffident about pocketing the man's money after testifying against him." (If the court would but order the examination, and pay for it out of the court costs, it would do away with this

unpleasant feeling.) The third is that occasionally some one of his colleagues has been summoned on the other side and has given testimony which is the exact opposite. In such a case, the expert may be asked his opinion regarding the colleague and how the colleague stands in the profession. The witness may take pleasure in lauding his *confrère*, but in so doing he depreciates his own testimony, and appreciates the colleague. It is his duty nevertheless to speak well of anyone who is in good standing in the profession, even if his own testimony must suffer.

The author properly says that in giving testimony one should use language which is comprehensible to the most illiterate juryman, and all answers to questions should be made brief, unequivocal, honest, and frank. "There should be no attempt to display knowledge or skill; the short, plain and polite answer to a question is the best passport to the good opinion of the court and jury."

Vail remarks that an expert who has made a thorough examination, and has learned the exact ocular condition of the plaintiff "has nothing to fear from cunning or pugnacious lawyers."

He tells us, as we know too well, that sometimes an expert is called on to explain or to elucidate ophthalmic matters. "He does not testify regarding the plaintiff for he has not examined him, and yet the hypothetical questions which are asked bear directly on the case before the jury." It is best in such cases, he says, "to regard the hypothetical question in a broad sense, for by so doing the answer will be qualified to meet any exigency which may arise in the cross-examination." Occasionally, one will be gratified to see that his testimony has given satisfaction to both the plaintiff and the defendant. Finally, he says a word regarding "a fourth party" which is involved in every case: "Our great specialty." Every expert, he states, must be regarded as an exponent of the speciality. In consequence, it behoves us to see that we bear ourselves in such a way as to incite honour and respect for the science and art of ophthalmology.

C. A. O.

OPERATIONS FOR PTOSIS.

- (1) Gendron.—On a case of acquired ptosis of inflammatory origin cured by Motais' operation. (*Sur un cas de ptosis acquis d'origine inflammatoire guéri par l'opération de Motais.*) *L'Ophthalmologie Provinciale*, mai, 1904.

- (2) **Trantas.**—**A case of ptosis operated on by the method of Motaïs.** (*Un cas de ptosis de la paupière opéré par le procédé de Motaïs.*) *L'Ophthalmologie Provinciale*, mai, 1905.
- (3) **Wolff, H.**—**The tendon of the levator palpebræ superioris muscle.** (*Ueber die Sehne des Musculus levator palpebræ superioris.*) *Zeitschrift für Augenheilkunde*, Mai, 1905.
- (4) **Wolff, H.**—**The transference of the action of the superior rectus muscle to the upper lid in cases of ptosis.** (*Ueber die Uebertragung der Wirksamkeit des Rectus oculi superior auf das Oberlid bei Ptosis.*) *Zeitschrift für Augenheilkunde*, Mai, 1905.
- (5) **Bocchi (Cremona).**—**Angelucci's method of correcting paralytic ptosis of the upper lid.** (*Il processo Angelucci per la correzione della ptosi paralitica della palpebra superiore.*) *Archivio d'Ottalmologia*, Luglio-Agosto, 1905.
- (6) **Bruns.**—**Ptosis and the operation of Motaïs.** (*Le ptosis et l'opération de Motaïs.*) *L'Ophthalmologie Provinciale*, II, 89, septembre, 1905.

(1) **Gendron** describes, under the name of "acquired inflammatory ptosis," a form of the affection which he has frequently seen result from long-continued phlyctenular ophthalmia, and records a case in which he obtained a perfect cure by the operation of Motaïs. The immediate result of the operation was excessive, producing lagophthalmos, owing to which the usual dressings were replaced by a pad of gauze fixed to the orbital margin by collodion.

R. J. COULTER.

(3) **Wolff** in connection with his ptosis operation discusses the question whether the tendon of elevator of the upper lid ends at the upper convex border of the tarsus; or, whether it is continued downwards between the orbicularis palpebrarum and the tarsus to its lower border when it becomes firmly united to neighbouring structures. He has made many dissections, and quotes numerous anatomical authorities, and comes to the conclusion that the tendon does not end at the upper border of the tarsus, nor is it even firmly attached there, but that it passes down between the orbicularis palpebrarum and the tarsus as a definite membranous layer to the inferior border of the lid. Hence, in operations requiring the orbicularis muscle and skin to be raised from the tarsus, care must be taken not to injure this layer, else ptosis (post-operative) may result.

A. LEVY.

(4) Wolff once again calls attention to a method of operation in ptosis described by him some years ago. It consists essentially in attaching the fascial connection between the superior rectus and the conjunctival fornix to the tendon of the levator palpebræ, and in this way the superior rectus is made to do double work—which is all the more easy as the two muscles are associated in most of their movements. A. LEVY.

(5) The operation for paralytic ptosis should have two indications in view, the æsthetic appearance and the function of the lid in protecting the eyeball. The great number of methods brought forward by different authors is a proof of their inefficiency.

Among the foremost must be noted :—

(1) The method of Motaïs-Parinaud in which the superior rectus is made to adhere to the tarsal cartilage.

(2) The different methods (Dransart, Pagenstecher, Tanley, Pergens, Darier, Jessop) which more or less tend to procure the adhesion of the palpebra to the frontalis muscle by means of sutures and subcutaneous cicatrices.

(3) The method of Panas, in which the eyelid is made to adhere to the frontalis muscle by means of a cutaneous flap passed underneath the eyebrow.

(4) The method of Angelucci, in which the elevation and movements of the lid are obtained by uniting the tendon of the levator palpebræ to the frontalis muscle.

(5) Bocchi then proceeds to criticise all these methods, giving the *pros* and *cons*.

Referring to the method of Motaïs-Parinaud he says that the correction obtained is insufficient to such an extent that recourse must be had to other operations to remedy the disagreeable appearance of the patient when he is made to look directly forwards; it also destroys the level of the corneæ and hence causes vertical diplopia accompanied by prolapse of the conjunctiva at the lower edge of the palpebra; and it finally also leads to corneal alterations in the shape of bullous keratitis (Valude) and ulcers.

The author considers the second group of methods useful, but the correction is obtained through the shortening of the lid, which, however, gains very little in mobility.

The third method, *viz.*, of Panas, is the most rational, having the advantage of one being able to regulate the effect required and hence the function of the palpebra is secured; but much is left to be desired both for the deformity due to the cicatrix as for the abolition of the cutaneous folds of the eyelid and of the orbito-palpebral sulcus.

Finally, Angelucci's method, already tried by Sourdille,

De Lapersonne, Puccioni, Desogus, and Bocchi himself, is the most rational and gives the best results, both with regard to æsthetic appearance, leaving no cicatrix, as to the function of the palpebra, utilizing the paralyzed levator palpebra and making it act by uniting its tendon to the frontalis muscle.

The *technique* of Angelucci's method (see *Archivio d'Ottalmologia* of 1900 and 1904) is the following.—Having disinfected the parts, shaved the eyebrow, and got the patient under chloroform, a curved incision $2\frac{1}{2}$ centimetres in length is made intersecting the skin and orbicularis at from four to five millimetres below the eyebrow. The parts are then dissected as far down as the superior border of the tarsus cartilage. Having thus uncovered the tarso-orbital fascia, two apertures are made in it, one on each side of the tendon of the levator; and by means of a strabismus hook the tendon is caught and gradually dissected from the fascia to which it is closely adherent. The tendon is then divided at its union with the belly of the muscle. *viz.*, at about 10 mm. above the upper edge of the tarsus cartilage; two double armed sutures are passed in the shape of loops at the extremity of the divided tendon, which are then introduced upwards underneath the supraciliary and orbital muscles, previously detached from the periosteum, and made to emerge from the skin above the eyebrow, where the two ends of each are knotted together. They must be tightened so as to bring the lower border of the upper lid just above the pupil, the frontalis muscle being in a state of relaxation. A modification proposed by De Lapersonne, and accepted by Angelucci, is to make a second small incision intersecting the tissues down to the periosteum at the upper border of the eyebrow, and fix the sutures to the upper lip of this incision, thus making sure that the frontalis muscle is included, instead of knotting them on the skin. CHARLES MANCHÉ.

(6) This is a translation of a paper by **Dickson Bruns**, of New Orleans, giving a description of the operation of Motais for ptosis, and histories of five cases in which he has performed it.

R. J. COULTER.

PULSATING EXOPHTHALMOS.

Usher, C. H.—Notes on Cases of Pulsating Exophthalmos.
Ophthalmic Review, November, 1904.

In this paper details are given of three cases of pulsating exophthalmos. No. 1 was a fatal case of traumatic origin. The patient was a fisherman who was shot in the head and

face with a fowling-piece at a distance of twelve yards. When seen there was no perception of light in the right eye, and pulsation was felt through the lid. There was much proptosis, and the lids were greatly swollen and ecchymosed. The globe scarcely moved in any direction and the pupil was semi-dilated and inactive. There was a small wound at the upper and inner part of the upper lid. There were also other wounds about the head and face. Three days after the injury the right external and internal carotids were ligatured just above the bifurcation, the pulsation was then no longer felt. On the eighth day after the accident, he had a sudden attack of dyspnoea, became comatose, and died. A careful dissection of the orbit was made, and a communication was found between some branches of the ophthalmic artery and the cavernous sinus. No foreign body was found within the orbit, even with the X-rays, so that the somewhat unsatisfactory view had to be taken, that the injury was caused by *contre coup*. What part, if any, the ligating of the artery played in the development of the symptoms it was impossible to determine. The patient was an alcoholic subject. *Case No. 2*, was a shepherd, aged 57 years, who, on waking one morning found a "stiffness" in the left eye and noticed that it was redder than normal; the sight was, however, as good as ever and there had been no injury. The patient complained of noises in the head. He was a temperate man, and had never suffered from gout, syphilis, or rheumatism; he also had a good family history. The external and internal carotid arteries were tied close above the bifurcation. The *bruit* became much less, and no pulsation could be felt. He attended seven years later with epithelioma of the lip, when it was found there was no *bruit* or pulsation, and he had been working as a shepherd ever since in a hilly district. His arteries, which were, when first seen, rather rigid, were now much more so. The cause of this case was probably an aneurism of the internal carotid or ophthalmic artery. *Case No. 3* was that of a girl, aged 4 years, whose parents had noticed that for two months the left eye had been getting prominent. Two weeks previous to this the child had fallen down stairs and had injured the left side of the face. She was unconscious for ten or fifteen minutes, and there was much bruising of the eye-lids. When seen there was much proptosis with pulsation, which latter could be arrested by pressure on the carotid artery. The movements of the eye-ball were unimpaired, and there was vision in the eye. The left common carotid artery was ligatured. The proptosis diminished, but soon returned, while the *bruit* was always present. Sixteen months later the

symptoms were as bad as ever ; the pupil was inactive, although objects could still be seen with the eye. The advantages claimed for tying the internal and external carotids over ligaturing the common carotid are, that the collateral circulation from the branches of the opposite external is more effectually prevented, as also is that between the branches of the ophthalmic artery and those of the external carotid branches.

C.D.M.

BLOOD PRESSURE AND SIZE OF PUPIL.

Roch, Maurice.—On the influence of blood pressure upon the size of the pupil. (*De l'influence de la pression du sang sur les dimensions de la pupille.*) *Revue de la Suisse Romande*, février, 1905.

Roch, of Geneva, in stating that the vessels of the iris play an important part in its movements quotes Venneman, who says that the pupil contracts when the blood vessels, arterial or venous, are congested, and dilates in the opposite case. This is true for general as well as local conditions. The phenomenon has been noted by various observers since 1840.

Grimelli injected coloured oil into the ophthalmic artery, and produced contraction of the pupil. Schwelcher noted pupillary dilatation in an animal bled to death, and contraction on injection of defibrinated blood into the systemic circulation. Ligation of the carotid produced a like effect, and injection into the eye led to mydriasis by an inverse action to that of intravascular injection. Claude Bernhard, after ligature of the third nerve produced contraction by a flow of blood. Brown Séquard noted myosis in an animal suspended by the hind feet, and Debousy, in himself after lying for some time on an inclined plane. Campos tried an interesting experiment. He cut the sympathetic in the neck of an ape. The pupil, previously 7 mm., became 5 mm. Electric excitation of the peripheral end of the sympathetic produced a maximal dilatation of the pupil. Then he ligatured the internal jugular vein and obtained considerable myosis, the pupil becoming only 2 mm. On electric excitation, again a maximal dilatation occurred.

The state of the vessels, then, has a distinct effect on the size of the pupil, although its effects are slower and less extensive than those produced by the muscles. Is there a relation between the mean dimensions of the pupil and the permanent pressure of blood ? Is this measurable, and can it be used in determining

a low or high pressure of the blood? Experiments were made on fifty women patients in the Geneva Canton Hospital, and all precautions taken to ensure uniformity of conditions for the patient and exactness in the observer. It was found that the difference in the size of the average pupil in high and low pressure was 0·65 according to arterial pressure and 1·2 according to arterio-capillary pressure, the figures representing thirds of a millimetre. Age was found to be an interfering factor, through the senile contraction of the pupil. Twenty of the fifty cases were therefore eliminated, i.e., all over 55 years, and now the differences became 2·2 and 3·3 respectively. The objection that the nervous influence causing the increased blood pressure, also produced the contraction of the pupil is met by the fact that such an influence produces *per se* dilatation of the pupil.

The conclusion is that the blood pressure has a distinct effect upon the size of the pupil. The size of the largest pupil measured was 19, the smallest 6. The difference is 13. Therefore the ratio between the effect produced by the blood pressure and that produced by the iris muscles is as 0·65 or 1·2 (the difference in the means above stated), to 13. Practically, however, it is valueless, since the vascular action is veiled by the muscular.

ROSA FORD.

MISCELLANEOUS

Fejer, Julius.—**Bilateral vitreous hæmorrhages.** (*Ueber beiderseitige Glaskörper Blutung.*) *Centralbl. für prakt. Augenheilkunde*, Januar, 1905.

Fejer reports a case of this interesting condition in a powerful, well-built man of 33 years. The causation could not be made out clearly. The only evidence was a disease of the throat some eight years previously, which was cured by mercury inunctions, and the present existence of enlarged glands in the groin and back of the neck. The author discusses the ætiology of the condition, which is generally to be found in some blood condition—pernicious anaemia, malaria, syphilis, etc.—and regards this case as being syphilitic in nature.

A. LEVV.

Pechin, A.—**Ocular troubles of hæmorrhagic origin in the aged.** (*Des troubles oculaires d'origine hémorragique chez les vieillards.*) *Recueil d'Ophthalmologie*, juillet, 1904

Pechin describes six cases showing the varying effects of hæmorrhagic lesions according as they occur under the con-

junctiva, in the choroid and retina, or in the neighbourhood of the oculomotor centres in the brain. Subconjunctival ecchymosis, when of spontaneous origin and occurring in old men, indicates degeneration of the vascular system, and may be the forerunner of cerebral haemorrhage. In one case, subconjunctival haemorrhage in a man, 68 years of age, was followed by fatal cerebral haemorrhage in about nine months. All the cases seem to have been remarkably free from cardiac and renal lesions, syphilis, rheumatism, etc., and the arteriosclerosis seems to have constituted the only common outstanding feature. The acuity of vision was reduced in all the non-cerebral cases. This was accounted for by some opacities in the lens, and small retinal haemorrhages and whitish and pigmented degenerative patches in the macular region in one case and by the whitish and pigmented patches alone in another case. In another case there were signs of a haemorrhage into the vitreous and numerous small detachments of the retina, whilst the companion eye showed retinal haemorrhages and pigmented patches in the macular region.

J. JAMESON EVANS.

Stirling, J. W.—Address on ophthalmology. Canada, Lancet, November, 1905.

Nettleship, E—Notes on the blood-vessels of the optic disc in some of the lower animals. Trans. Ophthal. Society, Vol. XXV. (1905), p. 338.

Ramsay, A. Maitland.—The ophthalmoscope in general medicine. Glasgow Medical Journal, December, 1905.

Mackay, Duncan Matheson.—The action of the external muscles of the eye, and the diagnosis of ocular paralysis: Prof. Elschnig's diagram. Lancet, 18th November, 1905.

Percival, Archibald S.—The diagnosis of ocular paralysis. Lancet, 2nd December, 1905.

Ferguson, R. Bruce. — The action of the external muscles of the eye, and the diagnosis of ocular paralysis. Lancet, 9th December, 1905.

Pascheff, C.—Papilloma limbi conjunctivæ. Royal Lond. Ophth. Hosp. Reports, Vol. XVI, Part 3.

During six years of practice in the Alexander Hospital, at Sofia, **Pascheff** has observed four cases of this affection, and in this paper he gives the clinical history and the histological

appearances of these cases, together with photomicrographs of the appearance of their structure. Clinically, the papilloma has a more or less mulberry appearance; it develops rather quickly; it is generally benign, although it may take on the characteristics of an epithelioma; it may appear at all ages, the youngest patient observed being 12, and the oldest 71 years. With regard to situation there are three types:—the first begins on the conjunctiva and spreads towards the limbus and cornea; the second springs from the limbus but does not invade the cornea, but grows in height rather than in breadth; the third begins at the limbus and develops entirely on the cornea. The ætiology is discussed, although but little is known as to this.

C. D. M.

Thorpe, Vidal G.—Case of congenital irido-dialysis with heterochromia. *British Medical Journal*, July 21st, 1906.

Hinshelwood, James. — Hints to the general practitioner on eye strain and its symptoms. *Lancet*, July 14th, 1906.

Thomas-Bret. — Ablation of ciliary margin. (*L'ablation du sol ciliaire.*) *Archives d'ophthalmologie*, mai, 1906.

Thomas-Bret, of Biarritz, believes that in certain cases of entropion, ablation of the edge of the affected eyelid is the only operation capable of yielding good and definitive results. In support of this view, he relates two cases. S. S.

Staehelin, R.—Fatal case of Idiopathic œdema. *Zeits. f. Klin. Med.*, Bd. 49, Hft. 5 and 6, 1903.

This remarkable case of idiopathic œdema is reported by R. Staehelin. A laundress, aged 51 years, noticed in July that the eyelids were swollen. A fortnight later the whole of the face was œdematosus and tender. The general health was good. The swelling and redness gradually extended to the chest and arms, and was accompanied by burning sensations. On August 6 deglutition became painful, and shortly afterwards pain was produced by movements of the limbs. She was admitted to hospital on August 20. The skin of the forehead, cheeks, and chin was bright red as though affected with erysipelas. The neck and chest were also reddened, but less intensely, and the skin of the forearms resembled that of the face. The redness disappeared on pressure. There was some desquamation over the face, but no formation of vesicles or nodules. The eyelids were markedly œdematosus, the temperature was 98.8° F., the pulse 72. The œdema gradually extended over the whole of the body, and was extremely

marked in the hands and feet. Except in the parts first affected—the face, chest and arms—there were no signs of dermatitis, and the skin was white. The œdematosus parts were soft and readily pitted on pressure. Later, the mucous membrane of the mouth and pharynx became involved, and there was progressive difficulty in deglutition and speaking. The œdema of the urethral mucosa necessitated constant catheterism. The internal organs were healthy. Only 35 ounces of urine of specific gravity 1020 were passed in the twenty-four hours; it contained no albumen. The retention of water caused a gain in weight of more than 10 kilos. in twenty-three days. Sodium salicylate, iodide of potassium, atropine, thyroidin, diuretin, pilocarpine, and other sudorifics were equally useless, and death occurred from progressive inanition on October 12, about three months after the onset of the disease. The necropsy confirmed the clinical diagnosis of idiopathic or essential œdema. The skin and mucous membranes were œdematosus, but the heart, kidneys, thyroid gland, blood, and other organs were normal.

This form of œdema is distinct from the more common acute circumscribed variety. A number of cases have been reported, some acute, others chronic. Of the former all ended in recovery after a few days. Of the latter several proved fatal. Occasionally there was effusion into the serous cavities.
Journal of the Royal Army Medical Corps, September, 1903.

Smith, A. Lapthorn, and Kerry, Richard. — Case of puerperal phlebitis with cellulitis of pelvis and orbital cavity and destruction of part of one eye. *Montreal Medical Journal*, July, 1906.

Smith and Kerry relate the case of a woman, aged 32 years, who, nineteen days after a normal labour, developed phlebitis of one leg and cellulitis of the pelvis, followed eight days later by a loss of consciousness, lasting for several weeks. Upon recovering her senses, the woman found that she was blind in one eye, which a few days afterwards began to swell and protruded from the orbit. Within the next week the orbital abscess broke, and pus was discharged from beneath the upper lid. The eye, quite blind, sank back into the orbit.

Pons y Marques. — Two cases of uræmic amblyopia. (Dos casos de ambliopia uremica.) *Archivos de Oftalmología Hispano-Americanos*, Marzo, 1905.

Both of the patients who are the subject of this paper suffered from long-standing albuminuria. In the first case, the amblyopia came on gradually, together with an aggravation of

the general symptoms of renal disease. In the second, the apparition of the defect of vision was sudden and unaccompanied by any marked general signs. The blindness was not complete, but the diagnosis was not difficult—the absence of a central scotoma eliminated toxic amblyopia, and the signs of any other disease were wanting. The acuity of vision was considerably greater by day than at night; in neither case was there any loss of colour-perception. Appropriate diet and treatment soon brought about an improvement. This point is of considerable importance, since it has been said that the appearance of amblyopia in these cases is the sign of approaching acute uræmia and death; these observations show that if the treatment be taken in hand as soon as the cause of the defect is suspected, not only may the vision improve, but the life of the patient may be sensibly prolonged.

HAROLD GRIMSDALE.

Sourdille, G.—On the morbid predisposition provoked by a wound of one eye upon the other eye. (De la prédisposition morbide provoquée par la blessure d'un œil sur l'autre œil.) *Archives d'ophthalmologie*, juin, 1904, p. 359.

Sourdille's idea is that a wounded eye is capable, not only of provoking sympathetic irritation or ophthalmitis in the other eye, but also of predisposing the latter to commonplace affections, as a consequence of disordered nutrition. In support of this view, he relates four more or less convincing cases, of which the third is clearly an instance of sympathetic irido-cyclitis.

H. DE V.

Onodi, A.—Disturbances of vision and blindness brought about by disease of the posterior nasal cavities. (Die Sehstörungen und Erblindung nasalen Ursprungs bedingt durch Erkrankungen der hinteren Nebenhöhlen.) *Zeitschrift für Augenheilkunde*, Juli, 1904.

Onodi proposed the following questions to some of the most important ophthalmologists: 1st, have you ever seen blindness or optic neuritis with disease of the sphenoidal and ethmoidal cells? Was the causal relationship manifest, and was the treatment of the nasal condition of service? 2nd, have you ever had confirmation by *post-mortem* examination of the causal relationship between disease of these cells and such blindness or optic neuritis? 3rd, in cases of unilateral neuritis is optic atrophy characteristic of disease of these cells, and what observations have you? 4th, have you ever seen a bilateral blindness come on in cases where there has been an empyema for years or caries of the sphenoidal cells, and being independent of this condition?

Among the answers received to these questions the most inter-

esting ones came from the following : Prof. Leber stated that such cases, although extremely rare, did occur. Prof. Axenfeld doubted very much if such cases occurred. He has for many years had all his retrobulbar neuritis cases examined by rhinologists and has not yet met with a clear case. The author has made a large number of sections of skulls and has found that in many cases the walls of the optic canal and optic foramen are formed by the posterior sphenoidal cell and separated from it only by a very thin plate of bone, and occasionally the whole of the chiasma may rest upon such a thin plate. The author collected several of these cases from the literature of the subject and the conclusion he comes to is that such cases are possible but they probably occur more frequently than is thought, and he gives expression to the necessity of careful rhinological examination in all cases of blindness, optic neuritis, retrobulbar neuritis, and exophthalmos of doubtful nature.

A. LEVY.

Snell, Simeon.—A case of atrophy of both optic discs resulting from uterine (post partum) hæmorrhage.

Trans. Ophthal. Society, Vol. XXIV (1904), p. 186.

A married woman, aged 28 years, developed puerperal mania on the ninth day after delivery, and upon her recovery was discovered to be blind. **Snell**, who was consulted, found both optic discs atrophied, without evidence of antecedent neuritis. An hour after the labour there had been considerable hæmorrhage, the result of retained placenta. Snell mentions a second case, in a woman of 46 years, where uterine hæmorrhage was apparently responsible for optic atrophy.

Jocqs, R — On the forms of sclero-keratitis, à propos a case of an indeterminate nature. (Sur les sclero-kéратitis, à propos d'un cas de nature indéterminée.)

La Clinique ophthalmologique, 25 novembre, 1905.

In this article **Jocqs** describes a case the nature of which he has been unable to diagnose. The patient was a girl of 21 years, of "lymphatic" appearance and very stout. Health good, menstruation normal. Neither syphilis or tuberculosis in the family history. The mother related the progress of events to the following effect :—"The eye affection commenced three months ago by a diffuse redness, without swelling of the external portion of the right eyeball, starting from the limbus. Neither pain nor photophobia. Several days later, opposite this red surface, 4 or 5 mm. from the limbus and on the horizontal meridian, a little nodule, the size of a millet seed, appeared. The appearance of this nodule was rapidly followed by the production of corneal opacities without increase of the photophobia." (It has been previously

stated there was no photophobia.—E.T.) "Some time afterwards a fresh scleral nodule appeared 2 or 3 mm. from the first one, of the same volume and without diffuse episcleral swelling. Also, as after the first, there was a fresh production of corneal opacities added to the first batch, which persisted."

Jocqs saw the case on 23rd October, 1905. "Slight pericorneal injection all round. Externally, starting from the limbus and diminishing towards the commissure, there is diffuse redness. Immediately beyond the limbus the tint is slate colour. Not the least diffuse episcleral swelling. Four mm. or 5 mm. transversely from the limbus are two nodules the size of a millet seed, slightly less coloured than the surrounding conjunctiva, hard to the touch, quite immovable and firmly attached to the sclera. Cornea is the seat of a dozen little white roundish spots from 1.5 to 2 mm. diameter, interstitial, at different depths, but nearer the anterior than the posterior surface Corneal epithelium intact over them. These spots only occupy the half of the corneal surface corresponding to the sclerotic lesion. Pupil dilated by atropine. Two posterior synechiæ. Parenchyma iridis normal." Treatment: dionin externally, iodogenol internally. By the 6th November the scleral nodules had almost disappeared, the corneal opacities remained about the same. Practically nothing more is said about this case, the rest of the article being taken up with a discussion of sclero-keratitis in general.

ERNEST THOMSON.

Schramek and Poullain.—*Modification apportée au sétréoscope, pour faciliter les exercices de rétablissement de la vision binoculaire.* *Bull. et Mém. de la Soc. française d'Ophthal.*, 1904, p. 460.

Ulbrich.—*An unusual corneal injury.* (*Eine seltene Hornhaut-Verletzung.*) *Klin. Monats. f. Augenheilk.*, 1904, p. 256.

The injury was caused by the patient (a man of 23) wounding himself in the left eye with a blunt knife. The epithelium was entirely removed from the upper third of the cornea; the lower limbus showed a curved wound. The cornea was divided from top to bottom into two pieces. After a temporary disturbance the flap healed on and the vision reached 6/20.

A. BIRCH-HIRSCHFELD.

Sala.—*Some unusual forms of glaucoma.* (*Einige seltenere Glaucomformen.*) *Klin. Monatsbl. f. Augenh.*, 1904, p. 316.

Sala describes a case of bilateral glaucoma several hours after dissection of a cataracta fluida. He further describes two

cases of traumatic glaucoma after contusion of the eyeball. Some remarks are appended on the significance for the pathogenesis of glaucoma of the increased proportion of albumen in the aqueous humour. For further details the original must be consulted.

A. BIRCH-HIRSCHFELD.

Onfray, René, and Opin.—The histological examination of a case of bilateral anterior polar cataract. (*Cataracte polaire antérieure bilatérale : examen histologique.*) *Archives d'ophtalmologie*, août, 1906.

Onfray and Opin examined clinically and histologically both eyes of a woman, affected with congenital anterior polar cataract, who died at the age of 40 years from uremia. The eyes were fixed in Müller's fluid and cut in celloidin. The anterior polar opacity was marked off from the anterior capsule of one lens by a kind of shallow trench. It stained badly, and appeared to be made up of stratified and fibrillary material, which contained here and there some fusiform cells. It was situated between the anterior capsule in front and the proliferated anterior capsular epithelium behind. No hyaline layer could be seen behind the opacity. As regards the other eye, the opacity was not prominent, but otherwise it presented an arrangement similar to that described above. In the light of their histological findings, the authors discuss the pathogeny of these opacities, but reach no tangible conclusion.

S. S.

Demaria.—An experimental study of the antitoxic and bactericidal action of the tears. (*Trabajo experimental sobre la acción antitoxica de las lágrimas y consideraciones sobre la acción bactericida de las mismas.*) *Anales de Oftalmología*, March, 1905.

Demaria comes to the conclusion that the normal tears have not been proved to have any bactericidal action, and shows by the results of his own experiments, that they have no antitoxic power. Finally, the tears of an animal into whom a dose of antitoxin has been injected do not acquire any antitoxin value.

HAROLD GRIMSDALE.

Ruijs, J. A.—Acute bilateral paralysis of the abducens (after cerebral haemorrhage). (*Acute dubbelzijdige abducens verlamming (na haemorrhagia cerebri.)*) *Ned. Tijdschrift voor Geneeskunde*, No. 25, 1903.

Ruijs's patient, a man of 56 years, suddenly fell down insensible, with symptoms of apoplexy, after coitus. After

recovering from his comatose state the patient showed (1) complete paralysis of both recti externi; (2) complete absence of all the normal skin and tendon reflexes; (3) a marked polyuria, the urine containing sugar and also some albumen; (4) a general weakness of all the muscles of the body, although there was no other paralysis than that of the recti externi. After a few days the patient consulted an oculist, who found "choked disc" and retinal haemorrhage in both eyes. The patient in five weeks made an almost complete recovery.

The symptoms mentioned above, lead one to suppose a lesion in the fourth ventricle, where the nuclei of the abducentes, the centre of polyuria and glucosuria, the reflex-centre (if there can be question of such a centre at all), lie near together.

G. F. ROCHAT.

Presas.—Decimal measurement of visual acuity, inferior in degree to $1/10$ of normal. The advantages of the centesimal optometric scale. (Otra aplicacion del sistema decimal para la medida de la agudeza visual inferior a $1/10$ de la normal promedia, y ventajas que obtendriamos con la escala optometrica centesimal.) *Archivos de Oftalmología Hispano-Americanos*, Mayo, 1905.

This paper naturally divides itself into two parts, in accordance with its title. Presas draws attention to the fact that below $1/10$ there is no accurate measurement of visual acuity in general use; he points out that by altering the distance at which the test types are seen, we can easily carry measurement lower. Thus, if we bring the object, which represents $1/10$ visual acuity at 5m., to a distance of only 0.5m., we are able to measure to $1/100$ of normal. By bringing it still closer, we may measure with accuracy even $1/1000$ of the normal. In this condition the type 50 Snellen will be read at 5cm. Smaller amounts may be measured by making use of the movements of the hand as a standard. Presas found empirically that the recognition of these movements at 2 metres, corresponded to a power of reading 50 Snellen at 5cm., i.e., to $1/1000$ of normal; if this be granted, recognition of hand movements at 20cm. will represent an acuity of $1/10,000$, beyond which it is not necessary to go.

In the measurement of the higher degrees of acuity, Presas thinks that it would be better to take degrees of acuity from 1 to 10, the latter representing the normal, and the other $1/10$ of normal. The degrees he proposes to call "gonioptrics."

HAROLD GRIMSDALE.

REVIEWS.

Photoscopy (Skiascopy or Retinoscopy). By MARK D. STEVENSON, M.D., Akron, Ohio, U.S.A., 8vo., pp. 126. Illustrated. Philadelphia and London: W. B. Saunders Company. 1906. Price, \$1.25 net.

This is by far the best special work upon the fundus-reflex test which has appeared. Its contents, commencing with a definition of the method, the value of the plan, suggestions for beginners, and a brief description of the necessary instruments, logically passes on to the underlying principles of the test and its practical application. An excellent bibliography is appended. The work can be recommended to both student and practitioner.

CHARLES A. OLIVER.

The Eye: Its Refraction and Diseases. By EDWARD E. GIBBONS, M.D., Assistant Surgeon of the Presbyterian Eye, Ear, and Throat Hospital; Demonstrator and Chief of Clinic of Eye and Ear Diseases in the University of Maryland, Baltimore, U.S.A. 472 pages, small quarto; cloth, \$5.00. New York, U.S.A.: The MacMillan Co., New York City.

This book, which is to appear in two volumes, has had its first part finished and published. The subject matter thus far given, embraces refraction and functional testing of the eye.

Careful study of the text and illustrations shows that the author possesses an intimate acquaintance with his work. The volume commences with a brief exposition of as much physics as is necessary for a proper comprehension of the subject; it gives just sufficient a description of the coarse anatomy of the eyeballs and their dual relationships to make the separated and combined functionings of the two organs fully understood; it describes the most important methods for the determination and estimation of both normal and abnormal refraction and accommodation; and it concludes its pages with a *résumé* of the best plans for adequate spectacle fitting; in fact, everything pertaining to the proper elucidation of this special form of ophthalmic practice, is offered in a way which is easy of grasp to the merest tyro in ophthalmology.

The work is by far the best recent written demonstration of the subject; it cannot be too strongly endorsed.

CHARLES A. OLIVER.

Memorias de la Segunda Reunion de la Sociedad Oftalmologica Mexicana. Pp. 204. Paper covers. Mexico; 1906.

The Mexican Ophthalmological Society show by the memoirs under notice the great activity of their body. This, the second annual meeting, has dealt with many important subjects; the President, Uribe y Troncoso, whose work on glaucoma is masterly, gave a series of demonstrations on the filtration of the ocular fluids, and read other papers. In all, fourteen subjects were discussed, and will be found in detail under the various heads, as the papers appeared in the *Anales de Oftalmología*.

Transactions of the Ophthalmological Society of the United Kingdom. Volume XXVI. Session 1905-1906. London: J. & A. Churchill, 1906. Price 12s. 6d. net.

Volume XXVI. of the *Transactions of the Ophthalmological Society* has just made its appearance, and, as usual, it contains many important contributions, which will be noticed in due course in THE OPHTHALMOSCOPE.

Lenses. Rochester (New York): The Bausch and Lomb Optical Company. 1906.

This is a well-printed, fully illustrated little *brochure* of 50 pages, which describes the processes of glass making and lens working, with a "popular" survey of the history of lenses, and the theory of lens action. Different forms of spectacle lenses, spherical, cylindrical, toric, etc., are explained and illustrated by diagrams, and there is an interesting account of the methods employed by this well-known firm of opticians for ensuring the perfection of their material and the accuracy of their work.

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C. A. O.

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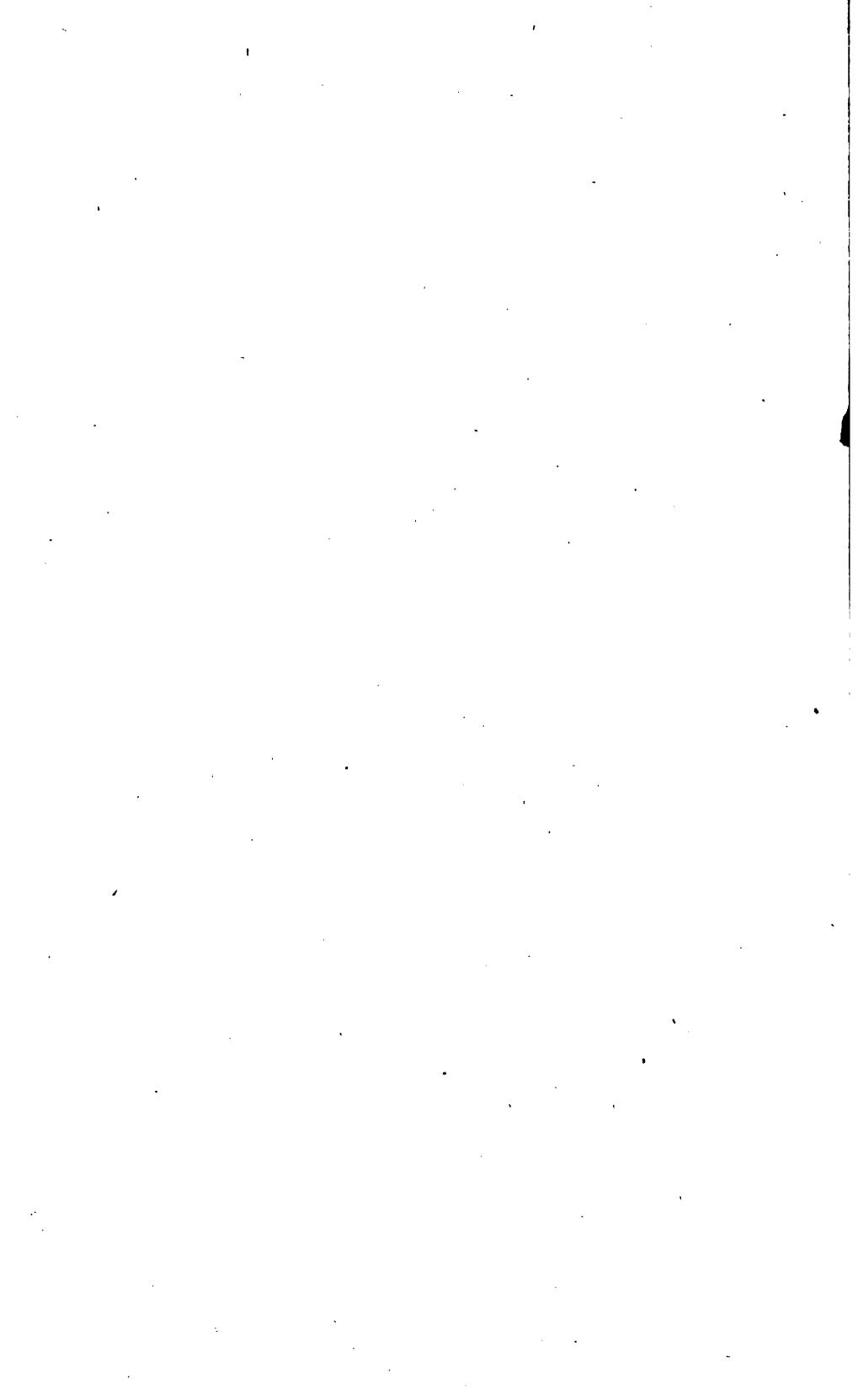
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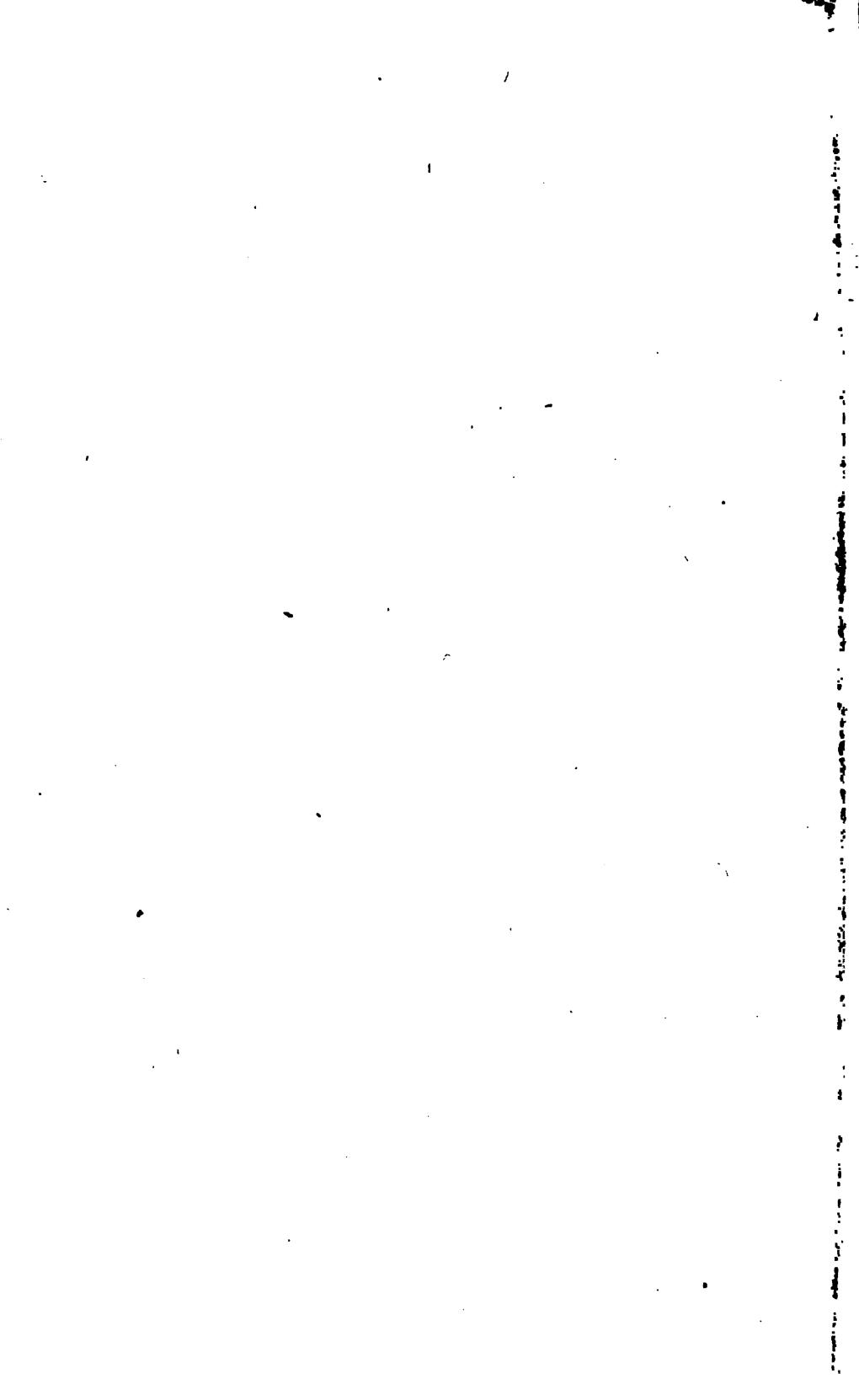
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